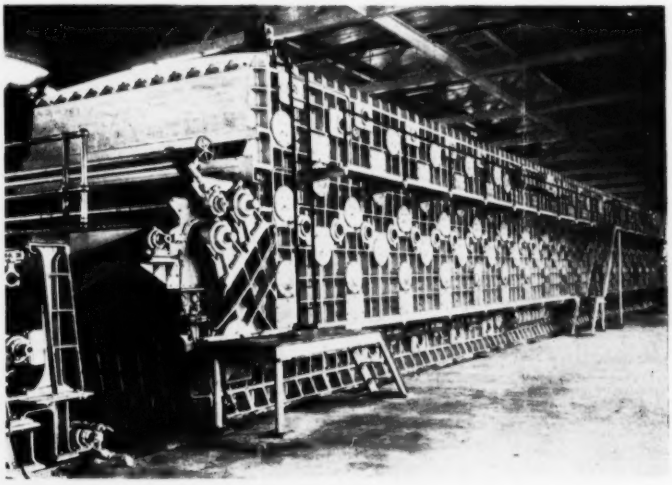
4676.05
PT

PAPER TRADE JOURNAL

Reg. U. S. Pat. Off.

Vol. CII | JUNE 25, 1936 | No. 26

THE MINTON VACUUM DRYER



After five years of experience with their first Vacuum Dryer the Weyerhaeuser Timber Company are now using a second and larger Vacuum Dryer in their new mill at Everett.

The following list of Companies that have purchased MINTON VACUUM DRYERS for drying PULP is convincing evidence of the merit of the Vacuum Drying Process for this purpose.

Name of Company	Kind of Pulp	No. of Dryers	Diam. of Dryers	Face of Dryers
Brown Corp., Canada	Special Kraft	26	60	144
Buckeye Cotton Oil Co., U.S.A.	Cotton Linter	24	48	128
Olympic Forest Products Co., U.S.A.	Bleached Sulphite	40	60	152
Weyerhaeuser Timber Co., U.S.A.	Bleached Sulphite	36	60	152
Kymmene A/B., Finland	Bleached Sulphite	32	60	152
Enso Gutzeit O Y., Finland	Kraft	48	60	152
Weyerhaeuser Timber Co., U.S.A.	Unbleached Sulphite	44	60	152

THE MINTON VACUUM DRYER CORPORATION
Smith Building,
Greenwich, Connecticut, U. S. A.

The last two of the machines in the above list are in production and will each produce more than 240 tons of pulp per day. We believe they will be the largest machines for the production of paper, pulp, or board of any kind ever built in the history of the world.

Vacuum Dried Pulp is better pulp. It is cleaner, whiter, stronger, and more easily beaten. No other drying process can produce as good pulp.

Vacuum Dried *Paper* shows equally good qualities. The economy of Vacuum Drying is also an important item for you to consider.

UNIVERSITY OF WASHINGTON
SEATTLE

DOWNINGTOWN

FRONT SUCTION OR REAR SUCTION

SUCTION COUCH ROLLS
(Plain or Cantilever Type)
SUCTION PRESS ROLLS
(Plain or Rubber Covered)
SUCTION DRUM ROLLS
SUCTION FELT CLEANING ROLLS

Front or Rear End Suction is available in Downingtown Suction Couch and Suction Press Rolls. Their design permits any arrangement of piping to the pump and many installations are made without changes to machine frames . . . All adjustments of deckles, packing strips and suction box are made from the front end, while running, and a hood protects all adjusting parts of both types from accidental damage . . . The adaptability of Downingtown Suction Rolls to every installation condition makes it easy to replace any plain couch or press roll or any old-fashioned suction roll with a MODERN DOWNINGTOWN Suction Roll . . . The Downingtown Mfg. Co., Downingtown, Pa.

LET US RUBBER COVER YOUR PLAIN SUCTION PRESS ROLLS

Entered as second class matter at the Post Office at East Stroudsburg, Pa., under the Act of Congress of March 3, 1879. Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., East Stroudsburg, Pa. Executive and Editorial offices: 15 W. 47th St., New York, N. Y. Domestic subscription U. S. and possessions, $4.00 per year.

PAPER TRADE JOURNAL

ESTABLISHED 1872

SIXTY-FOURTH YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

Published Every Thursday by the LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President — JOSEPH P. HORGAN, Secretary

Published at 34 No. Crystal St., East Stroudsburg, Pa.
Executive and Editorial Offices: 15 West 47th Street, New York
Chicago Office: 123 West Madison St.

TABLE OF CONTENTS

Weyerhaeuser Starts Sulphite Mill	13
Great Lakes Reorganization Progresses	22
Chicago Paper Demand Active	23
Rotary Knife Switch Control	23
Canadian Newsprint Situation Brighter	24
Coffee Trade Uses More Paper Bags	24
Allis-Chalmers Centrifugal Pumps	24
Philadelphia Association Activities	25
Storage Reservoirs for Consolidated	26
TAPPI Fiber Symposium at Appleton	27
Patterson Type U C Agitator	27
Obituary	28
Resolutions on J. G. Ramsey	28
To Head Northwest Paper Co.	29
Government Paper Awards	29
TAPPI Notes	29
Boston Paper Industry News	30
Taylor Fulscope Indicating Controllers	31
Fuess Oil Penetration Tester	31
New Paper Roll Stacker	31
Olivite Acid-Handling Pumps	31
Construction News	32
American Writing Sells Two Plants	33
C. G. Paine Made General Manager	33
Editorial	34
New Machine Preserves Paper	35
Sorg Paper Co. Acquires Bag Concerns	35
Robert Gair Co. Declares Dividend	35
S K F Grip-Lock Bearing	35
Technical Section	
Pulp and Paper Industry Literature Review	37
The Origin and Development of Cultivated Plants	38
Surface Treatment of Paper on the Fourdrinier Machine	42
Technical Men to Visit Murray Bay and the Saguenay River District	49
Imports of Paper and Paper Stock	53
New York Market Review	56
Miscellaneous Markets	58
Market Quotations	58

THE PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Want and For Sale Advertisements 62-63

NYCO PRODUCTS

Dependable

Dyestuffs
Self-Dispersing Pigment Colors
Earth Colors

A complete line • Colors selected to meet exacting requirements • And for all methods of application • Our efficient laboratory service will help you produce the proper color job economically •

NEW YORK COLOR AND CHEMICAL COMPANY

DIV. OF AMERICAN DYEWOOD CO.

Main Office and Works:
BELLEVILLE, N. J.

Branches:
BOSTON CHICAGO
PHILADELPHIA HOLYOKE, MASS.

Agencies:
KALAMAZOO, MICH. MIDDLETOWN, O.

WILSON MEATS MOVE FROM RANGE TO RANGE BY BELL SYSTEM SERVICES

SPEED is a major factor in marketing meat. Wilson & Co., Chicago packers, make wide use of various Bell System services in rushing their meat products to American consumers.

Long Distance, Teletypewriter Exchange Service and Private Line Morse Service enable Wilson to keep a close check on live stock supplies and market conditions. By means of these services, orders and shipping information flash back and forth between headquarters, sales offices, branch houses, poultry and produce plants, creameries, cheese factories and other operating units. Purchasing, production and sales activities can be co-ordinated almost as completely as though all of these units were housed in a single building.

One Wilson executive has expressed the value of these Bell System services to his company by saying, "They are as vital as refrigeration."

Very probably, some of these same services could be applied to your own business for faster, more profitable operation. Representatives of the local Bell telephone company will be glad to study your communication requirements with you and make specific dollars-and-cents recommendations. Just call the Telephone Office. There is no charge or obligation, of course.

BELL SYSTEM
AMERICAN TELEPHONE & TELEGRAPH CO. AND ASSOCIATED COMPANIES

PAPER TRADE JOURNAL
Reg. U. S. Pat. Off.
PAPER SIXTY-FOURTH YEAR PAPER
Established Feb. 17, 1899 Consolidated Nov. 16, 1899 with PAPER TRADE JOURNAL.
Vol. CII, No. 26 Thursday June 25, 1936
Established Sept. 21, 1910 Consolidated Feb. 19, 1925 with PAPER TRADE JOURNAL.

Weyerhaeuser Starts Sulphite Mill at Everett

Big Plant Erected at Cost of $3,500,000 Will Produce 300,000 lbs. Daily of Unbleached Sulphite Pulp—Strategically Situated With Respect to Timber Supply and Transportation Facilities—Designed by O. C. Schoenwerk

The new mill of the Pulp Division of Weyerhaeuser Timber Company will, it is expected, be making unbleached sulphite pulp commercially by the time this article appears in print. Preparations for the start-up of continuous operation of the mill have been under way since the middle of last February, when the first shipment of sulphur arrived. Situated in Everett, Wash., the $3,500,000 mill has been in process of construction for slightly more than a year. The first two or three months were spent in clearing away buildings that were part of a sawmill purchased by Weyerhaeuser in 1902.

Lately, while a supply of West Coast hemlock logs was being built up at the log pond, various plants of the new mill have gone into temporary operation so as to prepare for the start-up of continuous production. The break-down plant was the first to begin work on the wood. This plant, placed directly beside the waters of Puget Sound, is provided with a steady supply of logs, which are carried from storage in the log pond by means of a log haul-up.

Logging Operations

To supply its two sawmills in the city of Everett, the Weyerhaeuser Timber Company carries on regular logging operations at Vail, Wash., and West Coast hemlock is harvested along with predominant Douglas fir. At South Bay on Puget Sound these logs are made into huge rafts which are towed to Everett, the West Coast hemlock going to the log pond of the new pulp mill.

In the break-down plant the large logs are reduced to cants, which facilitates the wood-cleaning processes carried on in the chipping plant. While these cants were arriving by conveyor, the chipping plant was kept in operation for more than a week in order to fill the chip storage bin, prior to actual start-up of the mill as a whole. The first cooks in each of the six digesters were comparatively slow because of the desire to warm them up gradually. Now, however, pulp is coming off the drying machine, and each of the plants is in regular operation.

Unusual Architectural Beauty

Possessing unusual architectural beauty, separate buildings house the various plants of the mill. Most of the structures are built of steel-reinforced concrete, and, in all but a few instances, the slip-form method of pouring was used on their exterior walls. Typical of buildings erected in this way are the acid towers, which rise 112 feet, and the ninety-foot digester house. The walls of the machine room, 360 feet long, are of concrete supplemented by brick-work.

Most of the buildings have been erected during the latter half of last year, work early this year consisted of final tying-together of these units. Numerous stock tanks and extensive pipe lines, constructed of wood, were installed by the National Tank and Pipe Company, builders of the Douglas fir filter plant.

Erection of the Chip Conveyor

Following the insertion of feeders at the bottom of the twelve hoppers in the chip storage building, another link in the unifying process was forged with the erection of the conveyor which carries chips to the top of the digester house. Link-Belt equipment was installed by the Brinkley Company of Seattle. This belt, operated by the cook on duty in the digester house, some two hundred feet away, can be switched to tap the contents of any hopper. In charging a digester, the cook draws from at least three different hoppers in order to secure consistent moisture content in his chips. For his next charge he draws chips off the bottom of three other hoppers, and so on.

Coincident with arrival of the first shipment of sulphur, the pressure absorption tower was being lined with spiral brick. To complete the job of lining, 1,640 cubic feet of tile were required. Among other distinctive features of the new mill, chrome nickel fittings are placed on all pipe lines of the six digesters and two accumulators.

Filter Plant of Unusual Interest

Of unusual interest is the filter plant of the modern mill. It is built a mile from the mill site, and the main water-line which leads from the clear well of the purification plant to the mill floor, drops two hundred and forty feet in this distance. The direct source of water is the Everett reservoir, which in turn gets its supply from the Sultan River, thirty miles away. Water arriving at the filter plant goes first to the five settling basins. Then it passes on to the filter beds. There are eight of these, each of them capable of handling two million gallons of water every twenty-four hours. Of the sixteen million gallon daily capacity, the new pulp mill uses twelve million.

The new Weyerhaeuser mill is strategically situated with respect to timber supply and to transportation facilities. The pulp storage shed, the first completed building, stands between the machine room and the dock, to which come ocean-going ships capable of carrying the product to any seaport in the world. The mill also has access to important transcontinental railroad lines.

Each Mill Has Capacity of 150 Tons Daily

The Pulp Division of Weyerhaeuser Timber Company became active in 1931 when its first pulp mill started operation at Longview, Washington. The original mill, placed on the Columbia River, is about one hundred and eighty miles south of the new unbleached mill at Everett. Longview, also using West Coast hemlock, has been producing high grade bleached sulphite. The Longview and Everett mills are each listed as having a daily capacity of 150 tons.

Purchase of Log Raft Was Start of Weyerhaeuser

Purchase of a raft of logs and the renting of an old sawmill at Rock Island, Ill., in 1857 marked the humble beginning of the Weyerhaeuser Affiliated Companies, largest timber interests in the world, now dedicating its latest unit, the Weyerhaeuser pulp mill on the Everett waterfront.

When Frederick Weyerhaeuser, founder of the great Western timber group, purchased his raft of logs—and at a bargain—the nation was suffering from a panic, and everyone declared that the young lumberman was taking a long chance. Nevertheless he rented a sawmill of his former employers and began to manufacture lumber. Despite the money situation he was able to make a profit on the initial venture and with his earnings later purchased the mill in partnership with his brother-in-law, F. C. A. Denckman.

A Second Mill Purchased

The enterprise proved so profitable that in a short time a second mill was purchased, and Mr. Weyerhaeuser began purchasing standing timber along the Chippewa and Black rivers in Wisconsin. The logs were floated down these rivers into the Mississippi and then to Rock Island where they were sawed into lumber.

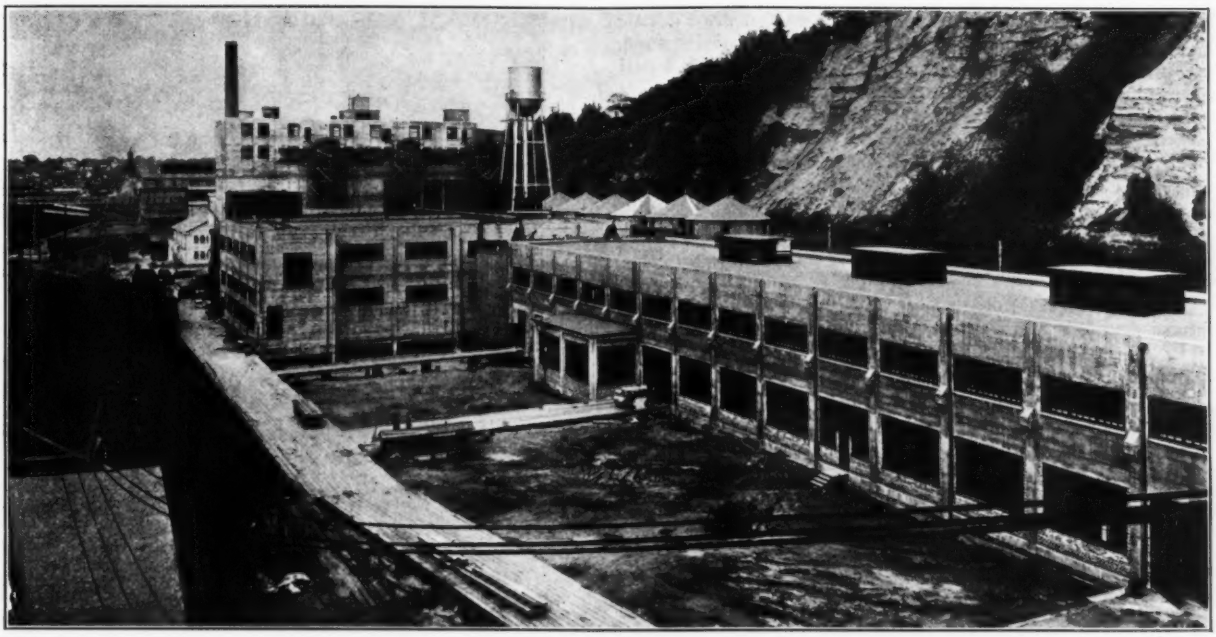
With the purchase of white pine timber in Wisconsin, Mr. Weyerhaeuser's interests began to multiply, and because of his straight-forward business methods and keen judgment many men were drawn to him. During the next twenty years he formed partnerships with more than a score of the greatest characters that the lumber business has ever known. In his choice of partners and associates Mr. Weyerhaeuser showed exceptional judgment, seldom making a mistake. In practically every case the sons of these men are now affiliated with the company, and several grandsons are coming up in the ranks.

In Northwest in 1900

The steady growth of the Weyerhaeuser company brought it to the Northwest in 1900. Here it began extensive operations in Washington, later extending into Idaho, and recently into Oregon. Today plants are located at Everett, Snoqualmie Falls, Raymond, Enumclaw and Longview, Wash.; Cloquet, Minn.; Potlatch, Boise, Coeur d'Alene, Sand Point, Bonners Ferry and Lewiston, Idaho, and Klamath Falls, Ore. All the Northwestern mills are operated by the Weyerhaeuser Timber Company.

The Weyerhaeuser Timber Company came to Everett in 1902 when the company purchased its Mill A site from the Bell Nelson Mill Company. The years until 1914 were marked by the gradual addition to the Mill A properties. In that year decision was reached to erect Mill B upon the

NEW WEYERHAEUSER MILL WHICH IS JUST GOING INTO OPERATION AT EVERETT, WASH.



NEW WEYERHAEUSER MILL WILL MAKE 150 TONS OF UNBLEACHED SULPHITE DAILY

Snohomish river delta. When this plant was erected it was the largest sawmill in the world. The faith of the Weyerhaeusers again was manifested in 1925 when Mill C was added to the interests here. Important as were the announcements of the erection of Mills B and C, the decision of the Weyerhaeusers to erect a huge new pulp mill in Everett in 1935 marked a new milestone in the city's industrial history.

The Weyerhaeuser Dock

The Weyerhaeuser dock is also an important unit in the company's activities in Everett and is now operated as a public terminal. It is estimated that it handles 80 per cent of the tonnage passing in and out of the port of Everett. The company operates also its own fleet of vessels, the carriers handling a general cargo business in addition to the products of the Weyerhaeuser company.

The executive offices of the Weyerhaeuser family are maintained at St. Paul as are the offices of the Weyerhaeuser Forest Products from which are handled advertising work and the service program of the affiliated mills. The general offices of the Weyerhaeuser Sales Company are in St. Paul with district offices in Tacoma, N. J.

Sales Offices of the Pulp Division

The Pulp Division of Weyerhaeuser Timber Company maintains three sales offices, two of which were opened when the first Weyerhaeuser pulp mill started making bleached sulphite at Longview, Wash. One original office, situated in the Bank Building, Clinton, Mass., has been the headquarters of H. F. Bigelow, district representative, ever since it was opened five years ago.

G. S. Brazeau was in charge of the Chicago sales office from its opening in 1931 until early last year when he took over the position of plant manager at Weyerhaeuser's new West Coast unbleached sulphite mill in Everett, Wash. Situated at 400 West Madison street, the Chicago office now serves as the headquarters of William Geiger and William McNair, district representatives.

A new sales office was opened at 230 Park avenue, New York City, on January 15 of this year. It is under the direction of L. K. Larson, district representative.

The following is a list of companies supplying equipment and services in connection with the construction of the Everett mill.

Excavation

Preparatory toward putting up any buildings on the plant site, excavation and removal of all debris, slab, and foreign material was completed by the Acme Construction Company, Seattle, Wash. Material was removed down to the beach level.

Piling

All concrete and wooden buildings are resting on fir and cedar pilings. Western Pole and Piling Company, Everett, Wash., furnished the pilings. American Pile Driving Company, Everett, Wash., drove the pilings.

Building Construction

All concrete buildings were erected by Alloway & Georg, Spokane, Wash. These concrete buildings are as follows: Boiler Room, Sulphur Storage, Acid Plant, Acid Towers, Accumulator, Digester, Knotter, Screen Room, and Machine Room. Slip form construction was used wherever possible. Superior Portland Cement, Inc., Seattle, Wash., furnished the cement.

The wooden buildings: The Chip Plant, Chip Storage, and Pulp Storage were constructed by H. J. Solie, Everett, Wash.

The office building was erected by Ole K. Sather, Everett, Wash.

Equipment—Power House

Boilers (2) were purchased from Babcock & Wilcox, Seattle, Wash. They are of the Stirling Water Tube type. Babcock & Wilcox also furnished two return bend superheaters, two water walls, two tubular air preheaters, and eight mechanical oil burners.

Diamond Power Specialty Corporation, Detroit, Mich., furnished two soot blowers.

Cochrane Corporation, Philadelphia, Pa., supplied one deareating heater.

Green Fuel Economizer Company, Beacon, N. Y., furnished two forced draft fans and two induced draft fans.

Northern Equipment Company, Erie, Pa., supplied two Copes feedwater regulators.

Worthington Pump and Machinery Corporation, Harrison, N. J., supplied two boiler feed pumps.

C. C. Moore Company, San Francisco, Cal., furnished all boiler room piping and installed all of the above machinery and equipment.

Link-Belt Company, Seattle, Wash., furnished all fuel conveyors and James H. Brinkley, Seattle, Wash., completed installation.

Isaacson Iron Works, Seattle, Wash., supplied boiler house gratings and walkways.

Colby Steel and Engineering Company, Seattle, Wash., hammer-head crane for unloading hog fuel.

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., turbines, motors and panels.

Equipment—Chip Plant

Diamond Iron Works, Minneapolis, Minn., two roller bearing hogs.

Stetson-Ross Machine Company, Seattle, Wash., barkers.

Sumner Iron Works, Everett, Wash., chippers, knot borers, chip screens.

Henry Disston & Sons, Seattle, Wash., slasher saws.

Filter Plant

James Coyne, Port Townsend, Wash., site excavation and road building.

Shibley Company, Seattle, Wash., filter plant equipment.

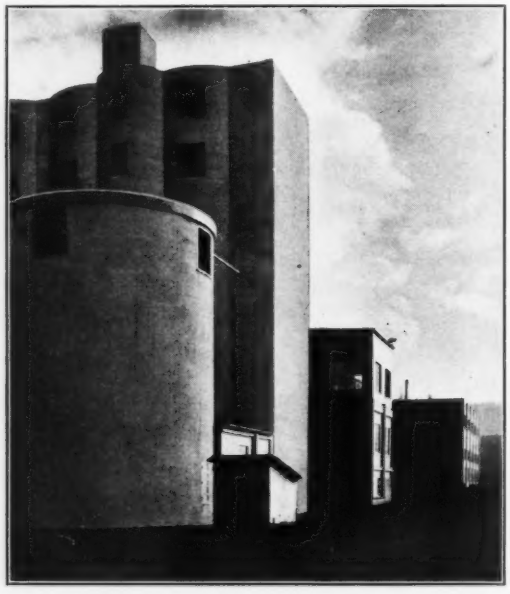
Equipment—Acid Plant

Link-Belt Company supplied sulphur conveyor equipment. Jas. H. Brinkley installed this equipment.

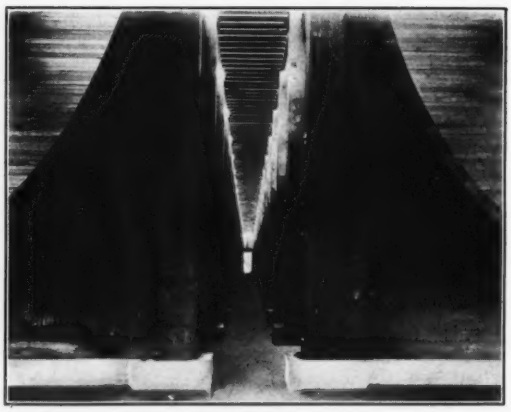
Chemical Construction Company, New York City, furnished and installed sulphur burning plant.

Northwest Lead Company, Seattle, Wash., supplied and installed gas cooler and miscellaneous lead piping.

National Tank and Pipe Company, erected all wooden acid tanks. Stebbins Engineering and Manufacturing Company, tile lined the Jenssen lime rock towers and recovery towers.



THE ACCUMULATOR HOUSING, DIGESTER HOUSE, KNOTTERS AND SCREEN ROOM



VIEW BETWEEN TWO OF THE FIVE SETTLING TANKS

This picture shows how the extensive use of wood contributes in making this plant unique among water purification systems. Filter beds, as well, are constructed of Douglas fir. Having a capacity of 16,000,000 gallons a day, this plant supplies purified water at the rate of 12,000,000 gallons every twenty-four hours.

Otis Elevator Company, installed the elevator in acid towers and digester building.

The Appleton Machine Company, Appleton, Wis., supplied one lead gas fan.

Bingham Pump Company, Portland, Ore., furnished pumps.

Equipment—Digesters—Accumulators

Carpenter Steel Company, Reading, Pa., Beehive coolers.

Electric Steel Foundry Company, Portland, Ore., fittings.

Michigan Steel Casting Company, Detroit, Mich., piping.

Stebbins Engineering and Manufacturing Company, Watertown, N. Y., lining digesters, accumulators, acid towers.

Willamette Iron and Steel Corporation, Portland, Ore., digester and accumulator shells.

Equipment—Blow Pits

Harrington & King Perforating Company, Chicago, Ill., blow pit bottoms.

Equipment—Screen Room

Appleton Wire Works, Inc., Appleton, Wis., furnished bronze fractionation screens.

California Press Manufacturing Company, San Francisco, Cal., continuous screw press.

Chromium Corporation of America, Waterbury, Conn., chromium plated screen plates.

W. A. Hardy & Sons Company, Fitchburg, Mass., screen plates.

Huntington Rubber Mills, Seattle, Wash., rubber rolls covering.

Improved Paper Machinery Corporation, Nashua, N. H., screens.

Equipment—Machine Room

Lindsay Wire Weaving Company, Cleveland, Ohio, supplied fourdrinier wires.

Asten-Hill Manufacturing Company, Philadelphia, Pa., furnished drier felts.

Berg Evans Chain Company, Seattle, Wash., wire tying machines.

A. E. Broughton & Co., Appleton, Wis., vacuum control unit.

Gardner-Denver Company, Quincy, Ill., compressor.
Ingersoll-Rand Company, New York City, condensor for drier, vacuum pumps.
Knox Woolen Company, Camden, Maine, drier felts.
Lockport Felt Company, Newfane, N. Y., drier felts.
Mailler-Searles, Inc., San Francisco, Cal., pulp conveyor, layboy.
Midwest Fulton Machine Company, Dayton, O., forced vapor circulating system.
Minton Vacuum Drier Corporation, Greenwich, Conn., drier license.
Pelton Water Wheel Company, San Francisco, Cal., pulp baling presses.
Rice, Barton & Fales, Worcester, Mass., drying machine.
J. O. Ross Engineering Corporation, New York City, ventilating and humidifying equipment.

Equipment—Shipping

Baker-Raulang Company, Cleveland, O., furnished lift and fork trucks.

Equipment—Laboratory

Bausch & Lomb Optical Company, Rochester, N. Y., microscope.

Cambridge Instrument Company, Ossining-on-Hudson, N. Y., pyrometer.

Leeds & Northrup Company, Philadelphia, Pa., electrical instruments.

Moore Dry Kiln Company, Portland, Ore., chip drier.

B. F. Perkins Sons, Holyoke, Mass., Mullen testers.

Testing Machines, Inc., New York, N. Y., freeness tester, tensile tester (Schopper).

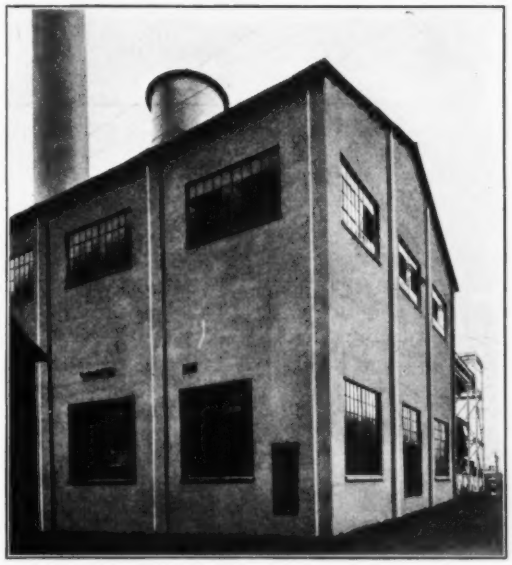
Tinius Olsen Testing Machines Company, Philadelphia, Pa., fold testers.

Valley Iron Works, Appleton, Wis., Laboratory beaters, sheet mold and press, flat screen.

Scientific Suppliers, Inc., laboratory supplies.

Thwing-Albert Instrument Company, Philadelphia, Pa., tear tester.

CONCRETE SULPHUR STORAGE BUILDING



THE POWER PLANT

Hermann Manufacturing Company, Lancaster, O., British sheet making testing equipment.

Equipment—Miscellaneous

Bingham Pump Company, Portland, Ore., all pumps.
Barde Steel Company, Seattle, Wash., furnished nuts, bolts, steel products.
Bartlett Hayward Company, Baltimore, Md., steel products.
Phillip Carey Company, Lockland, Cinncinnati, O., roofing.
Beall Pipe and Tank Corporation, Portland, Ore., steel pipe.
Crane Company, Seattle, Wash., miscellaneous piping, plumbing.
Doran Company, Seattle, Wash., bolts, fittings.
Durotile Company, Seattle, Wash., acid plant, laboratory flooring.
Garlock Packing Company, San Francisco, Cal., packing.
General Electric Company, Portland, Ore., motors, electrical goods.
Goldfinch Bros., Everett, Wash., paints.
Grinnell Company, Seattle, Wash., thermolier heaters.
G. & W. Electric Specialty Company, Chicago, Ill., electrical goods.
Hazard Insulated Wire Works, San Francisco, Cal., wire.
Alfred F. Howe, Oakland, Cal., flush shells, fittings.
Lloyd Company, Everett, Wash., hardware.
Agnew Hardware Company, Everett, Wash., hardware.
Marshall-Wells Company, Portland, Ore., hardware.
Mercon Regulator Company, Milwaukee, Wis., valves.
Merrick Scale Company, Passaic, N. J., weightometers.
Mill and Mine Supply, Inc., Seattle, Wash., conveyor belting.
National Tank and Pipe Company, Portland, Ore., all wooden tanks and pipe.
North Coast Electric Company, Seattle, Wash., electrical goods.
Northwest Bolt and Nut Company, Seattle, Wash., bolts, hardware.
Okonite Company, San Francisco, Cal., electrical goods, wire, cable.

Pacific Car and Foundry Company, Seattle, Wash., hardware.
Pacific Coast Forge Company, Seattle, Wash., hardware.
Pacific Foundry Company, San Francisco, Cal., hardware.
Paraffine Companies, San Francisco, Cal., paints.
Peoria Malleable Casting Company, Peoria, Ill., pipe lugs, shoes.
Pioneer-Flintkote Company, Seattle, Wash., roofing.
Portland Galvanizing Works, Everett, Wash., galvanizing.
Seattle Boiler Works, Seattle, Wash., water tower tank.
Ray Smythe, Portland, Ore., valves.
Toledo Scale Company, Toledo, O., scales.
Walsh Construction Company, Seattle, Wash., sprinkler system.
Washington Iron Works, Seattle, Wash., valves.
Weber Chimney Company, Chicago, Ill., power plant chimney repair.
Western Gear Works, Seattle, Wash., reduction gears.
Westinghouse Electric and Manufacturing Company, San Francisco, Cal., motors, electrical supplies.
Willamette-Hyster Company, Portland, Ore., pulp carrier.

Men Who Will Operate the Mill

The following are some of the men who built and will operate the new mill at Everett.

O. C. Schoenwerk

The new unbleached sulphite mill of the Pulp Division, Weyerhaeuser Timber Company was designed by O. C. Schoenwerk, consulting engineer. This is the second time his services were obtained by the Pulp Division in the planning and erection of a sulphite mill. Mr. Schoenwerk designed Weyerhaeuser's first pulp mill, the bleached sulphite unit at Longview, Wash. He has been connected with the building and operation of several West Coast pulp mills. Mr. Schoenwerk personally supervised the construction of the Everett mill and will remain on hand until production has been underway for some time.

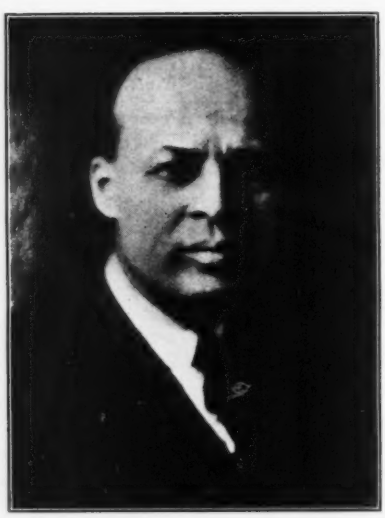
R. B. Wolf

Since its organization, prior to the opening of the Longview mill in 1931, R. B. Wolf has managed the Pulp Division of the Weyerhaeuser Timber Company. He accepted this position on the West Coast after more than thirty years of varied experience in the pulp and paper industry. Mr. Wolf has kept in close contact with all steps in the erection of the unbleached unit now in production at Everett, Wash. In charge of operations and sales of the Pulp Division, Mr. Wolf maintains his headquarters at Longview where W. N. Kelly is plant manager of the bleached sulphite mill.

G. S. BRAZEAU
Plant Manager at Everett

G. S. Brazeau

G. S. Brazeau, plant manager of Weyerhaeuser's new unbleached sulphite pulp mill at Everett, Wash., was in personal touch with all phases of construction throughout the past year. Prior to the assumption of duties connected with his position at Everett, Mr. Brazeau was district sales representative of the Pulp Division of Weyerhaeuser Timber Company maintaining headquarters in Chicago. He has been with the Pulp Division since 1931 when Weyerhaeuser's first pulp mill started producing bleached sulphite at Longview, Wash. Since his graduation from the University of Illinois, Mr. Brazeau has had wide experience in the pulp and paper business.



R. B. WOLFE
Manager Pulp Division, Weyerhaeuser Timber Co.

GERALD ALCORN
Technical Director

New! the STANOIL *Sextette!*

they've "Got Everything!"

...EVERY DESIRABLE PROPERTY ★ in such degree that these 6 grades of STANOIL can do the work of more than 24 types of oil now in use—and do it *better*, do it *more economically. Think of the possibilities this fact presents!*

★ *Unusually high stability*
Excellent demulsibility
Low pour test
Good viscosity index
Low carbon-forming tendency
Excellent color

Read about them

STANDARD OIL COMPANY (INDIANA)

CORRECT LUBRICATION

STANDARD OF INDIANA ANNOUNCES

SIX SUPERIOR NEW OILS

leading the way back to simplification of

CORRECT LUBRICATION

The STANOIL Sextette

• Set down the development of STANOIL as the most important lubrication event happening right now. Understand why it is so important. Learn what it can mean to you.

STANOIL—in six grades—can do the work of more than *twenty-four* other types of industrial oils—replacing scores of "special" oils which have complicated selection and use.

This *broad ability*—this versatility—of STANOIL is achieved by the only scientifically correct method: each grade of STANOIL is made to *combine* more desirable qualities than do any of the individual oils it can replace.

Because each grade of STANOIL is a *medley* of fine qualities it is able not only to replace several other oils, but it also does the work of each of them *better* and *more economically*.

With STANOIL, the Standard Oil Company (Indiana) leads CORRECT LUBRICATION *back toward simplicity*—reversing tendencies toward oils of limited applicability—for your advantage.

This STANOIL SEXTETTE is going to "back 'em off the boards" through sheer quality of performance.* STANOIL will be recommended to replace several of our own present brands.

STANOIL is here to make correct lubrication, economical lubrication, easier. And the coupon below is there to make it easier for you to learn more about STANOIL. Specifically, to learn just where *you* can use it to simplify your own lubrication practices—*profitably*.

*More stable than most turbine oils; separates readily from water; resists viscosity—temperature changes, and has unusually low pour test.

STANOIL, used in air compressors, will result in less carbon formation, less gummy deposits on pistons, piston rings and valves, than will conventional compressor oils—*because of the unusually low carbon-forming tendency of STANOIL.*

★

STANOIL, used to lubricate exposed or outdoor machinery, provides better bearing protection—*because of the low pour point of STANOIL.*

★

STANOIL, used in steam turbine lubrication, in place of usual turbine oils, will give longer service with less trouble from deposits—*because of the unusually high stability and demulsibility of STANOIL.*

★

STANOIL, used in bearing lubrication where ring oiling is employed, allows rings on bearings which must be started at low temperatures to turn and supply adequate lubrication immediately—*because of the low pour test and lesser tendency to thicken up with cold, of STANOIL.*

★

STANOIL No. 25 — suitable, at the same time, for compressor lubrication, gas engine cylinder lubrication, turbines, and use on many gears and bearings—illustrates how directly a plant can now simplify its lubricant selections, purchases, storage and application schedules *through use of the STANOIL SEXTETTE.*

Don't lose any time getting acquainted with the *Stanoil Sextette!* Write for full information and prices to Standard Oil Company (Indiana), 910 S. Michigan Avenue, Chicago, Illinois. Write, also, for the monograph "The Lubrication Engineer — His Value to You" or any of the other booklets dealing with different types of industrial lubrication.

Name_____

Address_____

City_____ State_____

P. T. 18

STANDARD OIL COMPANY (INDIANA)

CORRECT LUBRICATION

James D. Fraser

Mr. Fraser, one of the operating superintendents of the new mill at Everett, was engaged by the Pulp Division of Weyerhaeuser Timber Company late last year. He has spent ten years in the pulp and paper business on the West Coast, during which time he has secured a rounded experience by working at almost every job connected with the manufacture of pulp. Mr. Fraser was born in Ireland. Before coming to this country, he studied at Trinity College, Dublin.

Gerald Alcorn

After five years at Weyerhaeuser's bleached sulphite pulp mill at Longview, Wash., Mr. Alcorn has gone to the new mill at Everett in the capacity of Technical Director. Starting with the Pulp Division as a chemist, he has been engaged in analytical work and has been active in matters connected with the intensive production control that is maintained at Weyerhaeuser pulp mills. Mr. Alcorn graduated from the University of Washington where he obtained a degree in chemical engineering.

L. E. Hill, Jr.

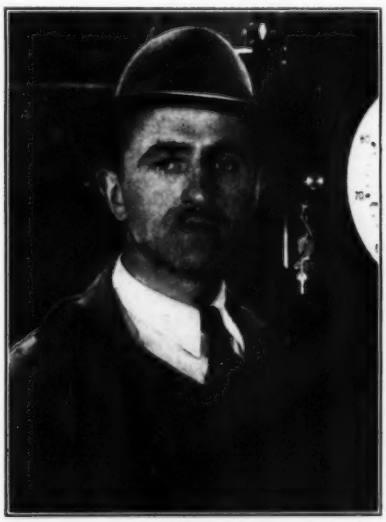
Prior to joining the Pulp Division of Weyerhaeuser Timber Company last fall, Mr. Hill spent eight years in the pulp and paper business. As plant engineer of the new unbleached sulphite pulp mill at Everett, he is in charge of power and maintenance. Following his graduation from the United States Naval Academy at Annapolis, Mr. Hill spent seven years at sea with the U. S. Navy. His work in the pulp field, largely of an engineering nature, has placed him in close touch with problems of mill maintenance and operation.

Walter J. Clough

Walter J. Clough, one of the operating superintendents of the new Everett mill, has been with the Pulp Division of Weyerhaeuser Timber Company ever since its first mill at Longview started making bleached sulphite. His position at Longview was shift foreman. Mr. Clough, who was born and reared in Maine, has spent eleven years in the pulp and paper business.

Orville E. Fox

Orville Fox, who is chief accountant at the new mill, has been with Weyerhaeuser for seven years and with the Pulp Division since 1931. Before taking over his position at Everett, Mr. Fox worked as cost accountant at the first Weyerhaeuser pulp mill at Longview. During the past year, he has been in charge of an office force that has been maintained at Everett ever since work was begun on the new unbleached unit. Mr. Fox attended the School of Business Administration at the University of Washington.



JAMES D. FRASER
Operating Superintendent

L. E. HILL, JR.
Plant Engineer

Paper Demand Steady in Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 22, 1936—Business among paper wholesalers here held up rather well during last week in both fine and wrapping lines. At one house it was stated that business was pretty good in fine paper for the time of year. Another house's statement was that it looks like a very good month. The concern has had a good two weeks and indications favor another active one.

It is understood that prices of at least some grades of fine paper, Nos. 1 and 2 sulphite bond, are to be higher, effective June 27, and that possibly other grades will advance. Wrapping paper was a little spotty, but a fairly good volume moved. Fancy papers for box coverings are seasonally slow. Box boards have been quiet for some time, with a seasonal let-up at the present time, but improvement is anticipated after July 15.

The paper stock market, as a whole, was quiet, although old papers, mixed papers, old newspapers and corrugated boxes moved steadily. Despite the fact that it is presidential election year, optimism seems to prevail throughout the trade for the fall business. Prices continued unquotably changed.

Prompt Adjustment of Brown Co. Asked

Prompt reorganization of the Brown Company and its release from trustees now running the business under section 77-B is asked by the first mortgage bondholder's committee headed by Lee S. Buckingham, president of the Clinton Trust Company of New York.

The committee points out that from a loss of $2,104,008 in 1931 the company's position has improved steadily to show a profit of $454,602 in 1935 and an estimated profit of $1,560,000 in 1936. The committee has prepared and sent to bondholders a plan of reorganization, and is asking for proxies so that it may be adopted.

GreatLakesReorganizationProgramProgresses

Director Harry Murphy Discloses Move to Take Company Out of Receivership—Declares Firm Is Now on Its Way to Permanent and Prosperous Production—Interest on Bonds May Be Paid from First Instalment

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., June 22, 1936.—As rapidly as possible the new directorate of Great Lakes Paper Company is moving to take the re-organized firm out of receivership. This announcement was made by Harry Murphy, Fort William business man appointed a director of the company, on his arrival home from a business trip to Ottawa, Montreal and Toronto. "The program of re-organization," he said "is moving along satisfactorily. I met officers of the company in Toronto and I can assure the citizens of Fort William that real progress in the newsprint industry, so far as Fort William particularly is concerned, is being recorded."

On Way to Prosperous Production

"The Great Lakes Paper Company now seems on its way to permanent and prosperous production." Mr. Murphy received assurance while in the east that plans affecting Abitibi Power and Paper Company are progressing satisfactorily. Some time, he said, must elapse before definite action can be taken in actual production but constructive plans are under way that will bring the local plant into the field again before long.

Believe Interest Will Be Paid

In informed circles it is believed that interest on the new Great Lakes Paper Company bonds will be paid from the first instalment onwards. Earlier there have been intimations that perhaps the payment could not be met, but it is understood that the recently formed new directorate has been considering the matter and has reached the conclusion that it would be impracticable to seek amendments to the scheme of reorganization for the purpose of postponing interest payments.

It also was learned that while newsprint executives have been meeting with regard to higher prices for next year, some English investors have become interested in the depreciated securities of producing Canadian companies from the point of view of prospects as, if and when newsprint prices go higher. English groups are understood to have representatives in Canada at the present time making a study of the newsprint situation.

Bonds Have Been Firming Consistently

Bonds of the group have been firming consistently for over a week, with some gains of substantial proportions over the period. Issues to rise have held their gains, the move apparently being based on the certainty of higher prices for the next contract period. Prices for the following year usually are fixed about this time.

Merger Plans Continue for Newsprint

Negotiations between New York financial interests and Canadian newsprint leaders with the object of bringing about a merger of a number of Canadian newsprint companies, are reported to still be proceeding, although not yet out of the preliminary stages. The companies mentioned are Abitibi Power and Paper Company, Consolidated Paper Company, Price Bros. and Company, and St. Lawrence Paper Company. The merger idea in Canadian newsprint is not a new one. It has been suggested from time to time for the sake of the obvious advantages that the industry would enjoy. Those close to present proceedings were not communicative this week merely intimating that negotiations were still under way. Consolidation of four leading units would tend to give greater measure of stability to the industry than it at present enjoys. It would also possess certain advantages in such items as bargaining and marketing. It is pointed out that consolidation usually lends itself to more economic operation.

B. C. Newsprint Sales Curtailed

According to word from Vancouver South America is now virtually out of the picture so far as British Columbia newsprint mills are concerned, and the reason is Scandinavian and German competition. There was a time when British Columbia mills sold substantial volume to some of the South American countries, but the foreign exchange situation has been an effective deterrent in recent months. Argentina operates under a tariff and exchange arrangement whereby the country endeavors to control imports to the amount of exports in relation to the nation with which it does business. Canada happens to be one country that does not buy a great deal from Argentina, because the two countries produce approximately the same commodities. What newsprint Argentine does buy comes from Scandinavia and Germany, both of which countries find it convenient to buy Argentine's wheat, meat and other products. Germany entered the South American market with low-price newsprint comparatively recently. Germany has been selling in Mexico for the same reason, and because of this competition British Columbia mills have been shut out.

New Sulphur Producing Method

The paper industry, particularly in Northern Ontario and Quebec, will profit greatly from a new method of producing elemental sulphur recently discovered at the University of Toronto, according to Professor Maitland C. Boswell of the department of chemical engineering at the University. The new method was explained by Professor Boswell before the Nineteenth Annual Convention of the Chemical Association at Niagara Falls, Ont.

Materials used in the new process he says are chiefly waste, smelter gas and cheap raw materials such as Northern Ontario lignite. "We have discovered," the professor said, "that certain suplhur catalysts when synthesized cause hitherto unknown reactions to take place. This we believe will lead to a new development in this division of the chemical industry. We had developed this process with the particular needs of Northern Ontario and Quebec in view.

"At the present time Canada imports a large quantity of sulphur for the paper industry. At the same time smelters produce waste gas which is destroying agricultural crops in the vicinity of the plants and creating a condition which recently was the cause of international arbitration in the state of Washington."

Prof. Boswell indicated the new discovery will have the two-fold result of aiding the paper industry and protecting agriculture from injurious sulphurous fumes.

Paper Demand Moderately Active In Chicago

While Fundamental Strength Remains In Practically All Grades of Paper, Prevailing Movement Is Decidedly Narrow—Fine Paper Market Comparitively Quiet—Kraft Wrapping Paper More Active—Paper Stock Steadier

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 22, 1936.—A market almost entirely devoid of any widespread movement featured the Chicago paper business during the past week. Movements were decidedly narrow, although fundamental strength remained in virtually all grades. There seems to be a growing belief that the various markets are going to improve noticeably after July 4 and observers point to developments in other lines as an indication of their opinion.

The kraft market was perhaps the most in demand during the week, the strength reported as being partly due to the firmness in the kraft pulp market. Groundwoods were in fair demand and the newsprint market also gave a better account of itself. Inquiries were less in the fine paper markets, with bonds and ledgers showing a fair sample of the regular summer doldrum period. Books were reported as slightly more in demand while covers remained about the same. Waste papers were steady to firmer, prices ranging a bit in excess of those established within the past two weeks.

News of the Industry

Members of the Salesmen's Association of the Paper Industry, Midwest Division, and their guests will enjoy the second in the annual series of golf outings next Friday, June 26 with the difficult and lengthy Bob-O-Link Golf Club course as the site of the activity. Luncheon events and an interesting dinner program have been arranged for and another record crowd is expected to attend. Notice has gone out that Courtney Reeves, fortunate winner of the special prize drawing, will be ruled out of similar high lights at the Bob-O-Link party.

The Swigart Paper Company has recently announced that all Strathmore Bond Papers are now stocked in Chicago by the well known jobber firm. "No more scouting the market for Strathmore Bond Papers" reads the announcement which announced that "the largest and most complete stock of these famous brands ever assembled in the middle West" is ready for the customer. The announcement is printed on Strathmore Bay Path Bond and carries complete information concerning grades, prices and specifications.

J. H. Coy, vice president and Chicago sales executive of the Flambeau Paper Company, left June 12 for an extended visit to business connections in Ohio, Michigan, and the general central territory. He is expected to return to Chicago on June 24 and in plenty of time for the SAP-EYES golf outing two days later. A new Buick of the most fashionable variety assisted Mr. Coy in enabling him to make his circuit tour in the most rapid and comfortable fashion.

George Raymond has been appointed superintendent of the Quincy, Ill., mill of the Central Fibre Products Company. Mr. Raymond entered the paper business back in 1918 when he became identified with the American Straw Board Company. The Quincy mill, incidentally, is reported to have added a new suction drum roll to its equipment thus making possible the elimination of three sets of baby press rolls.

The J. W. Butler Paper Company bowling team won the annual bowling tournament sponsored by the Paper Merchants Bowling League. Participating in 99 games the team averaged 863 pins a game and rolled over 85,000 pins for the series. Sixty nine games were won as compared to 30 lost. The Bradner Smith & Co., No. 1 entry placed second; while the No. 2 team placed eighth. Several of the companies entered two teams in the event.

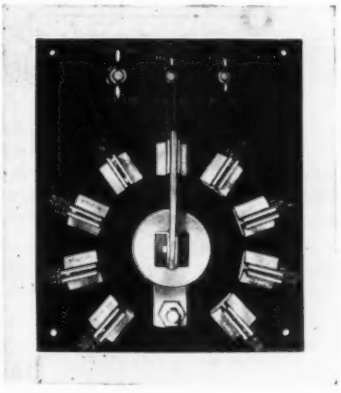
Fairbanks-Morse & Co., has recently issued bulletin number 6310 describing and illustrating the new F. M. Propeller Pumps for the handling of large quantities of water at low heads. The bulletin gives actual illustrations of the pumps in operation.

Three Chicago executives were recently honored by the National Paper Box Supplies Association at the annual meeting of the organization held in Atlantic City. C. A. Gage, vice president and Chicago manager of the National Adhesives Corporation, was elected vice president; while A. C. Anders, Bradner Smith & Co., and H. W. Gellersted, Container Corporation, were two of the four new trustees elected by the association.

The Howard Paper Company's newest broadside entitled "Color Magic" is receiving a great deal of favorable comment locally. A beautifully colored butterfly reproduced on the Howard Bond printing piece does an exceptional job of calling attention to the fourteen colors in the Howard line.

Rotary Knife Switch Control

The Miller Electric Manufacturing Company, Green Bay, Wis., has perfected a rotary knife switch control which brings all the amperage changes under one switch arrangement. This improvement is distinctly marked in amperes so the operator knows exactly what amperage he is getting under any setting of the switch. This rotating knife switch is of heavy duty construction which assures long life and trouble-free operation. Contact between knife blade and the welding lead is made through a large copper disk of heavy carrying capacity. The switch can be rotated in either direction.



With the announcement of this improvement to the Miller Wonder Arc Welder, Miller Electric Manufacturing Company, Inc., announces that from this date the entire sales of the Miller Electric Welder will be handled by Giant Grip Manufacturing Company, Oshkosh, Wis. The merger of these two organizations is due to the increasing sales of the Miller Welder, and the new set-up puts behind this popular item national sales organization that will be able to better service the jobbers and users. Giant Grip Manufacturing Company has been in business since 1863 and is widely known in the industrial field.

Canadian Newsprint Situation Brighter

Department of Trade and Commerce Reveals Average Increase of One Million Dollars Per Month In Value of Newsprint Exported From Dominion In Five Months Ending May 31, As Compared With Same Period of 1935

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., June 22, 1936.—An average increase of $1,000,000 a month in the value of newsprint exported from Canada to the United States in the five months ending May 31, as compared with the similar period of 1935, is recorded in trade returns just released by the Department of Trade and Commerce. The total for the five months is $32,000,000, as compared with $27,000,000.

These figures follow a return by the News Print Service Bureau showing that in May Canadian newsprint production set a new all-time record at 267,067 tons. The previous highest record was in October, 1935, when 266,515 tons were produced. For the first five months of 1936 the production at 1,219,212 tons compared with 1,054,253 tons in the same period a year ago. An increase of 15.7 per cent. As a reflection of this market strengthening in production, continued activity and strength in newsprint issues has been an outstanding feature of the local stock market.

Price Bros. Ruling Favors Creditors

In the court at Quebec, Judge Langlais has decided that creditors of Price Bros. and Co., have a right to accept or reject any scheme of reorganization. Consequently he ruled that the planned reorganization of the company, submitted by the Trustee-in- Bankruptcy of the firm in April last is not acceptable.

The judge said he could find nothing in the law stating the shareholders, common or preferred, can have anything to say in connection with the acceptance or refusal of any project or agreement.

"There is no text of law which directs me to advise the petitioner to set aside the vote," he declared, "If I did so I would be indirectly advising the petitioner to decide in favor of the proposal which the dissenting parties opposed, and I would be voting for them.

"There does not seem to be any doubt on this subject. The creditors and the creditors alone, had the right to accept or refuse the scheme of arrangement. At the meeting it was the creditors present or represented by attorneys who voted contrary. Therefore there can be no acceptance."

The judge ordered all parties assessed with the costs of the court.

At the time the vote was taken on the company's reorganization plan, both common and preferred, shareholders voted overwhelmingly in favor of the arrangement. The creditors, including Saguenay Power Company, Aluminum Company, Alma and Jonquiere Railway Company and Geoffrion and Prud-Homme opposed the scheme on the grounds it was unsound.

Operating at Capacity

Meanwhile the newsprint mills of Price Bros., & Co., are operating at capacity, and in recent weeks there have been established several new all-time records in the company's productive history. Current output, running at level of well over 300,000 tons per annum, offers a far cry from the 215,000 tons produced by the company for 1935. While it is true that a good proportion of the company's tonnage is South American, which is generally counted as extremely low-priced, it is gathered that the general average net price enjoyed by the company this year is well ahead of that of the past several years. Equally promising is the fact that a higher price for South American tonnage for next year appears already definitely assured.

Japan Buys Less Pulp in B. C.

According to Oscar Jorgenson, assistant manager of the British Columbia Pulp and Paper Company, Japanese buying of pulp in British Columbia has been disappointing so far this year. It had been expected that after Canada's trade difficulties with Japan were brought to an end at the turn of the year there would be a brisk rush of business caused by cancellation of orders during the last six months of 1935, when both countries imposed severe tariff restrictions, but this has not materialized so far. True, there has been definite recovery, but not to the level that had been anticipated.

Kraft production in British Columbia is being retarded by tariffs and entry of low-cost wrapping paper into countries that normally buy in largest volume. There is a 35 per cent tariff on Canadian kraft entering the United States, although kratt pulp goes in free. Australia and New Zealand have a ten per cent duty, which has been sufficient to keep exports from British Columbia to a lower level than would otherwise be the case. Both the Australasian countries are endeavoring to protect their own infant kraft industries.

Coffee Trade Uses More Paper Bags

Increased utilization of paper containers, in place of tin or glass, for the packaging of coffee is looked for in grocery trade circles, following the action of General Foods Corporation in inaugurating the marketing of a new coffee brand, paper packed, in some areas in the South.

While many in the trade view this step by General Foods as a measure designed to meet the competition of Standard Brands' featured coffee brand, which is reported to have doubled its sales volume since tin containers were discarded last year in favor of the cheaper paper bags. The *Journal of Commerce* says that a spokesman for the former corporation declared that such a competitive battle is unlikely.

Allis-Chalmers Centrifugal Pumps

Allis-Chalmers Manufacturing Company, Milwaukee, Wis., has issued a new leaflet 2224 on their single suction end inlet centrifugal pumps, mounted on substantial pedestals, and used with direct connected or with Texrope V-belt drives. These pumps are bronze fitted and range in size from 1¼ x 1¼ to 5 x 4, for heads up to 100 feet and over, with many applications in most every industry. In addition to showing the general construction with dimension tables, this leaflet shows a number of typical combination drives. This type of pump can be furnished suitable for use in an inclined or vertical position, as well as horizontal.

Association Activities In Philadelphia

Board of Governors' of Paper Trade Association of Philadelphia Elects New Members to Fine and Coarse Paper Divisions—Philip Rudolph & Son Elected to Membership of Philadelphia Paper and Cordage Association, Inc.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., June 22, 1936—At the Board of Governors' Meeting of the Paper Trade Association of Philadelphia, held on Wednesday, June 17, H. A. Whiteman & Co., 60 East Union street, Wilkes-Barre, Pa., was elected to membership in the fine and coarse paper divisions; C. R. Andrews Paper Company, of Pittston, Pa., and Zoeller Paper Company, 158 West Pennsylvania avenue, Wilkes-Barre were elected to membership in the coarse division.

At the regular monthly luncheon meeting of the Paper and Cordage Association, Inc., which was held in the Adelphia Hotel on Friday, June 19, President George K. Hooper announced that this would be the last meeting of the association until fall. Philip Rudolph & Son, Orianna and Willow streets, were elected members, bringing the membership up to 97. Mr. Hooper spoke very highly of the work accomplished by E. K. Lay, chairman of the Entertainment Committee who, with the cooperation of the other members, worked indefatigably to make the annual outing, which was held on Friday, June 12, at Manufacturers Country Club, the largest and most enjoyable outing the association has ever had.

Judge Lewis Guest Speaker

President Hooper then introduced the guest speaker, the Hon. Judge William Lewis, Judge of Municipal Court of Philadelphia, who held his audience spellbound from beginning to end of his compelling address. Said Judge Lewis:

"I like to know what are the heartstrings that move people. I like to find out what goes on in the minds of persons. And I think in rubbing elbows and shoulders with a group like you and similar groups I should learn that which all of us ought to learn—that we don't know it all, and, consequently I get the sort of information which I find helpful to me in my general work.

"I would like to talk business in general—particularly your own—but you see I have a totally different type of business. Even in the days of depression I knew nothing about it because I came into my work-shop every morning and found an army of customers. I don't have to send a salesman and do not have need to advertise for business. Regularly, every morning at 10 o'clock when I appear these customers have to take my merchandise at my prices.

"I want to look at you and have you look at me—I want to get better acquainted with you gentlemen. With regard to the business of making a living—of making money—I have never found a satisfactory answer to the purpose of living; even in the worst days of depression most of us somehow managed to make a living. What is infinitely more important to my mind is to know something of the means for which we live.

"One of the things for which you individuals live, without articulating it or putting your finger upon it, is to associate with those who are like-minded in your business, in competitive business if you please, and see after all if we cannot all be on the level in exchanging views, in exchanging credit information—things that in the final analysis definitely affect one another; for instance, when one of you goes by the boards it definitely affects the other fellow, and on the other hand if one of you ascends the heights it likewise affects all of you."

Judge Lewis spoke at length on the tendencies and trends that are becoming more and more obvious in the economic and industrial, the civic and political sides of our lives, and stressed the choice between economic security and political slavery, citing conditions in Germany, Turkey, Poland and Hungary.

Judge Lewis continued: "There is no governmental agency or outside agency that can guarantee happiness. Happiness comes from within us—it comes from being a good father, a good husband, and a good citizen, and not at the behest of any law. After all there are only ten simple rules which, in my humble judgment, contain all the law that is all-sufficient for all people to live with their neighbors. No law that ever was passed, no law that ever will be passed is going to judge the acquisitiveness of human nature, the desires, hopes and fears—you cannot do it by law; these come from within.

"Maybe I ought to talk to you about justice. Well, after fourteen years sitting on the bench, if you were to ask me what is justice, frankly I could not define it. What is justice today may be the heighth of injustice tomorrow; certainly what we regard as justice today was not justice years ago. All you can do is an attempt perhaps a groping in the dark like something after which the heart yearns—like the Kingdom of Heaven. We cannot put our finger on it, we know that it is, but know not where.

"In attempting to administer justice, this I do know that the majority of people who come before me want to be honorable; they want to tell the truth and so behave themselves that they will not injure other people. And that is as it should be in your business. So if we can get together on that sort of platform to preserve those ideals as laid down by those Ten Commandments there will be no room for unhappiness, which ultimately brings about prejudice and hatred."

Judge Lewis told his listeners to go back to their business offices, forgetting a Judge had talked with them, and try to remember if, in his talk he had made any impression, that in this blessed land of ours we all have a common heritage, a common ambition, a common understanding and a common desire to maintain those ideals which have made us the indubitable people that we are today.

Harry Frost Made Sales Manager

Harry Frost has been appointed sales manager for the Sinclair Company, Holyoke, Mass., and will be in charge of all sales for the three products of the company—fourdrinier wires, dandy rolls and cylinder molds.

Mr. Frost has been with the Sinclair Company for the past year and a half, and in making the announcement of his promotion, Peter S. Sinclair, president of the company, stated that Mr. Frost has developed so rapidly that he has become "one of the family."

Headquarters for Mr. Frost will be in Holyoke and no doubt many of his friends will wish him well and many years of happy service with the Sinclair Company.

More Storage Reservoirs for Consolidated

President George W. Mead Announces Replacement of Mill Dam At Biron, Wis.—Work to Be Started On Big Eau Pleine Reservoir for Wisconsin Improvement Co.—Project Will Provide Uniform Year-Around Water Flow

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 22, 1936.—Replacement of one-fifth of the Consolidated Water Power and Paper Company's mill dam at Biron, Wis., at a cost of about $85,000, was announced by George W. Mead, president, last week. Work is to be started at once and will be done by the company under the direction of W. F. Thiele, engineer, and Tom Utegaard, in charge of construction.

A concrete gravity section 242 feet long and a gate section measuring 158 feet will replace a rock-filled timber crib section of 400 feet in use more than thirty years. Five Tainter gates will be put in, bringing to 27 the total number on the 2,000-foot dam. The dam has a head of 23½ feet, and there will be no change in the river elevation.

These new sections will take the place of flash boards, a section of which was swept away in a flood in the spring of 1935 and temporarily replaced.

Approximately $150,000 worth of equipment is being moved by the George W. Condon Company of Omaha, Neb., to Marathon County, Wis., where work is to be started within about a week by a crew of 100 men on the Big Eau Pleine reservoir for the Wisconsin Valley Improvement Company. The entire project will cost about $600,000 and is financed by the Consolidated Water Power and Paper Company, chief beneficiary of the vast storage reservoir to provide uniform year-around water flow in the Wisconsin River. A bond issue for the project will be repaid by annual tolls from the paper mills and others served by the Improvement company. This will be the 21st storage dam on the Wisconsin River.

The Condon contract amounts to $325,000 for the construction of a dam one mile long and 30 feet high. The work must be completed by January 1 so the reservoir can be placed in operation during the flood period next spring. The reservoir will impound 4,250,000,000 cubic feet of water, increasing the amount of storage by 40 per cent. The flow of the Wisconsin River will be increased from 1,500 cubic feet per second to 2,000 when the new reservoir is placed in operation.

W. F. Thiele and Tom Utegaard, engineers of the Consolidated company, conceived the idea of the Big and Little Eau Pleine River projects. They frequently fished in the region around Knowlton, Wis., and their plan received a favorable reception from other engineers.

Project Result of Five Years' Study

Five years of study and planning have gone into the project. A special committee of engineers appointed by the Improvement Company worked in collaboration with the Harza Engineering Company, Chicago, which reviewed and approved the plans. Besides Mr. Thiele and Mr. Utegaard, the committee included W. E. Brooks, the Improvement company's manager; E. P. Gleason, chief engineer of the Nekoosa-Edwards Paper Company; Grover Keeth, chief engineer of the Marathon Paper Mills Company; C. A. Carson, chief engineer of the Wisconsin Public Service Corporation; and A. G. Walter, vice-president of the Wisconsin Power and Light Company. Other mills which will benefit are the Wisconsin River Paper and Pulp Company and the Whiting-Plover Paper Company.

Laws were passed in three sessions of the Wisconsin Legislature to legalize the project and obtain 12,000 acres of farm lands for the artificial lake covering 7,333 acres. The final enactment was signed by Governor Philip F. La-Follette in 1935. Ninety per cent of the land has been acquired and the remainder is being purchased.

Contracts will be awarded later for the rock riprapping of the dam's upstream face, and for a canal to the Wisconsin River. A reservoir on the Little Eau Pleine River is to be built later to complete the program.

U. S. Forest Products Laboratory

Expansion of the work of the United States Forest Products Laboratory at Madison, Wis., is urged in a report submitted to the Department of Agriculture at Washington by the Farm Chemurgic Council. The report recommends: Improvement of the present pulping processes; development of new pulping processes to increase the usefulness of present pulpwood species application of pulping processes to new species; increase in efficiency and knowledge of the fiber processing operations, heating, bleaching and refining; effective utilization of woods and mill wastes.

Although $1,000,000 was asked of Congress, the appropriation for the fiscal year beginning July 1 will be $608,361. This is an increase of $100,000 over the last fiscal year.

News of the Industry

Bergstrom Paper Company, Neenah, Wis., has applied to the city council for a refund of $7,350 on its municipal taxes, claiming an error of $350,000 in assessment. The company's property was valued at $950,000, and taxes were paid on that basis under protest. The council has taken the matter under advisement.

Northern Paper Mills, Green Bay, Wis., was the victor in a circuit court case last week in which damages of $700 were sought by John Berg, who blamed the Northern's crane operator for negligence when a pile of pulp wood shifted on a boat he was helping to unload and he was injured. The jury found neither party was negligent.

A six per cent dividend was declared at the annual meeting last week by the credit union of the Neenah Paper Company, Neenah, Wis. The union has approximately 225 members, and its assets total $7,000.

Harold G. Bell, chemical engineer for the West Virginia Pulp and Paper Company, and Miss Carla Heller of Appleton, Wis., were married June 20 at the First Presbyterian church at Appleton. They are spending their honeymoon in northern Wisconsin, and will reside at Covington, Va.

Another wedding last week united Dr. James Foote of Delaware, Ohio, and Miss Martha Ray of Attica, Ind. The ceremony was performed at the summer home of her brother, Myron T. Ray, of the Thilmany Pulp and Paper Company, at Lake Winnebago, near Appleton, Wis. Dr. Foote received his Doctor of Philosophy degree from the Institute of Paper Chemistry at Appleton this month, and has accepted a position with the Munising Paper Company, Munising, Mich., where the couple will reside. Mrs. Foote formerly was employed in the Thilmany company office.

TAPPI Fiber Symposium at Appleton

During the period from June 9 to 18 about thirty members of the Technical Association of the Pulp and Paper Industry skilled in fiber identification work, met at the Institute of Paper Chemistry, Appleton, Wis., for a symposium, round table discussion and laboratory work dealing with pulp fiber identification and estimation.

Slides for Fiber Work

The first week was devoted to a series of lectures, demonstrations and laboratory experiments on the techniques involved in the preparation of slides for fiber work, in the staining of various fibers by the "C" stain and others developed by John Graff of the Institute, and finally in the count method for evaluating the fiber composition of the slides. Eight specially prepared suspensions of fibers were investigated by the group, using methods ordinarily followed. Later the new stains were used to demonstrate their relative efficiencies.

Round Table Discussions

The second week was devoted to a round table discussion on the identification and estimation of fibers. A special committee consisting of John Calkin, chairman; F. C. Clark, R. H. Simmons, M. A. Youtz, G. K. Spence, R. W. McKinley and C. E. Peterson and John Graff met for the purpose of rewriting the TAPPI Standard T 401 m (Fiber Composition of Paper) in the light of the results of the cooperative work of the group present. The existing method was greatly improved and the new technique involving the use of the "C" stain was written into a new proposed tentative standard which was approved by the group present and has been referred to the Microscopical Methods Subcommittee of the Paper Testing Committee of the Technical Association.

Reviews Life of Geheimrath Herzberg

To commemorate the 75th anniversary of the birth of Geheimrath Wilhelm Herzberg, Mr. Graff presented an interesting review of his life and accomplishments and the group voted to send him a cable congratulating him on his anniversary. He is located in Potsdam, Germany.

Mr. Graff read an interesting paper on the history of fiber identification and pointed out that nearly all of the procedures that are being followed and are considered modern were really copies of or improvements on procedures known many years ago.

Testimonial Dinner to Mr. Graff

Following the symposium on Tuesday evening, June 16 the group tendered a testimonial dinner to Mr. Graff in recognition of his enthusiastic and unselfish efforts in instructing the group in the short time that was available for this purpose.

Those Who Participated

Those who participated in the round table discussions were as follows:

J. B. Calkin, Dennison Manufacturing Company, Framingham, Mass.; D. A. Cameron, Alliance Paper Mills, Ltd., Merritton, Ont.; R. M. True, Blandin Paper Company, Grand Rapids, Minn.; L. V. Hans, Pettengill Inc., Chicago, Ill.; L. E. Kelley, American Writing Paper Company, Holyoke, Mass.; R. W. McKinley, A. D. Little Inc., Cambridge, Mass.; R. H. Simmons, Government Printing Office, Washington, D. C.; L. B. Tucker, Crane & Co., Dalton, Mass.; F. A. Simmonds, Forest Products Laboratory, Madison, Wis.; G. S. Willey, U. S. Gypsum Company, Chicago, Ill.; M. A. Youtz, Northern Paper Mills, Green Bay, Wis.; C. M. Connor, Glassine Paper Company, Conshohocken, Pa.; F. C. Clark, Skinner & Sherman Inc., Boston, Mass.; W. L. Cassiday, Cornell Wood Products Company, Cornell, Wis.; H. S. Faram, Watervliet Paper Company, Watervliet, Mich.; L. Scheid, Watervliet Paper Company, Watervliet, Mich.; L. S. Reid, Metropolitan Life Insurance Company, New York, N. Y.; C. E. Peterson, Riegel Paper Corporation, Rigelsville, N. J.; Stanley Sonnenberg, Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis.; Reinhold Vogt, Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis.; Thomas Fyfe, Eastman Kodak Company, Rochester, N. Y.; A. J. Smith, Miamisburg Paper Company, Miamisburg, O.; Milton Schmitt Thilmany Pulp and Paper Company, Kaukauna, Wis.; D. B. Wicker, Thilmany Pulp and Paper Company, Kaukauna, Wis.; G. K. Spence, New York and Pennsylvania Company, Munising, Mich.; R. G. Macdonald, Secretary of the Technical Association of the Pulp and Paper Industry, New York; H. W. Morgan, H. F. Lewis, Otto Kress, and John Graff, Institute of Paper Chemistry, Appleton, Wis.

Patterson Type U C Agitator

The Patterson Type "UC" Agitator consists of a Patterson Unipower Agitator Drive which is of extremely heavy and rugged construction throughout, weighing from three to four times as much as geared motors or other motor driven speed reducing devices of equal horse-power. The Unipower Agitator has a heavy bed-plated which is cast integral with the body of the drive, and an oilless guide bearing is built into the base of the unit to take the side thrust and "bend" of the vertical shaft at this point. This bearing, being of the oilless type, protects the product being mixed, inasmuch as lubricant cannot find its way into the product.

The speed reducing unit in this drive is of novel design, having no worm, spiral or spur gears of the conventional type and having much higher efficiency than most reducing units, and in addition, being able to withstand 400 per cent momentary overload.

The Type "UC" Agitator has a cone built on to the bedplate, which braces the bottom of the stirrer shaft and prevents it from being distorted by pressure against the stirrer by material being handled. An oilless guide bearing, together with pressure type stuffing box, is built into the lower end of the cone. A step bearing is unnecessary on most jobs where this type of construction is used.

The unit shown is provided with variable pitch propeller of the three-blade type, making it possible to vary the pitch, to adjust the propeller type stirrer to the viscosity and specific gravity of the material being mixed, thus making it possible to secure the maximum amount of turbulence with the horse-power available without danger of overloading the motor.

Obituary

Herbert E. Harmon

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., June 20, 1936.—Herbert E. Harmon, secretary of Knowlton Brothers, Inc., died this week at his home here following illness attributed to his advanced age. He was 82 years old. He joined the local concern in 1887 at the invitation of George W. Knowlton and since then has been continuously associated with the company for a period of more than 49 years.

His long service with the concern made him a prominent figure in the paper manufacturing industry. When the company was incorporated in 1892 he was one of its incorporators. He succeeded G. Seymour Knowlton as secretary of the firm in 1910, a position he filled until his death. He has been a stockholder since the company was incorporated.

Some years ago he was president of the Harmon Paper Company but that connection was more or less nominal. That mill, originally known as the Outterson Paper Company, was leased to Knowlton Brothers in 1898 but a year later the company surrendered its lease and the Harmon Paper Company was organized. Mr. Harmon was made president but he still retained his connection with Knowlton Brothers. About 1900 John J. Warren purchased a large part of the stock and he and Mr. Lefebvre were partners in the firm.

The survivors include the widow, a daughter, two nephews, a brother and a grandson.

Edward J. Rogan

[FROM OUR REGULAR CORRESPONDENT]

PAWTUCKET, R. I., June 20, 1936.—Edward J. Rogan, for the past ten years treasurer of the Blackstone Glazed Paper Company, died recently at his home, 152 Cross street, Central Falls, after a long illness.

Born in Lonsdale on April 13, 1866, Mr. Rogan won a wide reputation and many friends in the clothing business in Providence, Pawtucket and Woonsocket. He conducted stores for 35 years.

For four years Mr. Rogan was a trustee of the Adams Memorial Library, being appointed by the City Council. He was a member of Sacred Heart Church, Pawtucket Lodge of Elks and Delaney Council, Knights of Columbus.

Mr. Rogan is survived by a daughter, Mrs. Martin J. Flaherty of Central Falls; a brother, John T. Rogan of Central Falls, and a sister, Mrs. Mary Gray of Lonsdale.

Resolutions on J. G. Ramsey

The Pacific Coast Division of the American Pulp and Paper Mill Superintendents' Association and the Pacific Coast Section of the Technical Association of the Pulp and Paper Industry have passed the following resolutions on the death of the late James Garfield Ramsey, superintendent of the Everett Pulp and Paper Company, Everett, Wash.:

WHEREAS, the Pacific Coast Division of the American Pulp and Paper Mill Superintendents' Association and the Pacific Coast Section of the Technical Association of the Pulp and Paper Industry have lost one of their loyal, devoted and outstanding members, James Garfield Ramsey; and

WHEREAS he gave generously to these organizations of his time, thought and sound judgment; and

WHEREAS as paper maker, friend and associate he was a constant source of inspiration to all who came in contact with him, each of whom feels most keenly the loss of his sympathetic interest and kindly helpfulness:

NOW, THEREFORE, BE IT RESOLVED That we give appropriate expression of our grief at the loss of our friend, James Garfield Ramsey, and of our deep sympathy to his family; and

BE IT FURTHER RESOLVED That these resolutions be spread upon the minutes of the Pacific Coast Division of the Pulp and Paper Mill Superintendents' Association and the Pacific Coast Section of the Technical Association of the Pulp and Paper Industry, and that copies be transmitted to Mr. James Garfield Ramsey's family and to the National Officers of the above named Associations.

PACIFIC COAST DIVISION OF THE AMERICAN PULP AND PAPER MILL SUPERINTENDENTS' ASSOCIATION, George W. Brown, president; H. A. Des Marais, secretary.

PACIFIC COAST SECTION OF THE TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Wm. R. Barber, president, Earl G. Thompson, secretary.

Revised Simplified Practice Recommendation for Photographic Paper

Simplified Practice Recommendation R98-36, Photographic Paper, is a revision of R98-29, bearing the same title. The original recommendation, approved by a general conference of the industry in October, 1928, and effective March 15, 1929, established a simplified list of sizes of photo finishing, portrait, and commercial paper, and the width and length of single- and double-weight rolls. It was reaffirmed by the standing committee in May, 1930, following a survey among manufacturers of photographic paper, which indicated the degree of adherence to the simplified schedule to be approximately 96 per cent, based on production for the year 1929.

In July, 1935, the chairman of the standing committee advised that a sub-committee on photographic paper, under the General Code Authority of the NRA, had made some revisions in the listed sizes of photographic paper to meet current demand, and it was deemed advisable to incorporate these changes in a revised edition. These changes comprised the elimination of one size and the addition of five new sizes to the present list of cut sizes. The revised recommendation became effective February 1, 1936.

Until printed copies are available, complimentary copies of this revised simplified practice recommendation, in mimeographed form, may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

Plant Unions Meet

Three mill officials were among the speakers at the Annual Convention of the Wisconsin-Michigan District Council of Paper, Pulp and Converting Plant Unions held Sunday, June 14, at Wisconsin Rapids, Wis. They were: C. E. Jackson, mill manager, and Leo J. Barrette, employment manager of the Consolidated Water Power and Paper Company, and Frank R. Walsh, general manager of the Ahdawagam Paper Products Company. Addresses also were given by Raymond Richards, Wisconsin Rapids, of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, and James Creed of Kalamazoo, Mich., of the International Brotherhood of Paper Makers.

New officers elected are: C. Khonas, Green Bay, Wis., president; Oswald Sharkey, Wisconsin Rapids, Alex Shores, Marinette, Wis., and Clarence Coonan, Escanaba, Mich., vice-presidents; Edward G. Gilbertson, Wisconsin Rapids, secretary, and Ed Gill, Appleton, Wis., treasurer.

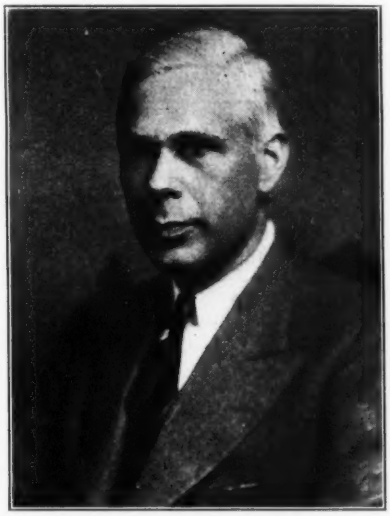
Appleton, Wis., was chosen as the meeting place for the quarterly convention September 13.

To Head Northwest Paper Co.

Officials of the Northwest Paper Company of Cloquet, Minn., announce that Stuart B. Copeland, well-known figure in the paper and pulp industry, has accepted their offer of the position of president. It is expected that he will take over his new duties at Cloquet shortly after the first of September.

Mr. Copeland, formerly of the Eastern Manufacturing Company, Bangor, Maine, served as vice-president and general manager of that organization and since 1917 was in charge of all operations. He has been active in the industry and at present is president of the United States Pulp Producers' Association, an office which he has held since its organization in May, 1933, and vice-president of the American Paper and Pulp Association.

Mr. Copeland was born in Davenport in 1889. He spent



STUART B. COPELAND

most of his early life in Wisconsin where his father, George E. Copeland, was superintendent of agencies of the Northwestern Mutual Life Insurance Company, Milwaukee.

After attending the Massachusetts Institute of Technology, from which he was graduated in 1911, Mr. Copeland entered the pulp and paper business in accepting a position with the Katahdin Pulp and Paper Company at Lincoln, Maine. Working up through the various departments of this mill, Mr. Copeland held the position of assistant general manager when, in 1914, that organization was absorbed by the Eastern Manufacturing Company.

Mr. Copeland was elected vice-president in charge of manufacturing late in 1917, after which he was put in charge of all operations. He continued in this capacity until 1928 when there was a complete change in management. Since then, he has served as a director, in addition to being vice-president and general manager. Mr. Copeland has always been active in industry affairs. His early work included serving as chairman of the Stream Purification Committee of the American Paper and Pulp Association.

In the fall of 1931, Mr. Copeland was spokesman for the industry in its efforts to secure relief through federal legislation from unfair foreign competition during the so-called "depreciated currency" period. During the NRA, Mr. Copeland was active in the preparation of the Pulp Industry Code and served as chief administrative officer of the Code in the capacity of chairman of Pulp Executive Authority. Also, he was active in preparing the Pulp and Paper Industry Code and was a member of the administering body, the Paper Industry Authority. Prior to the NRA Code Period, he was a member of the executive committee of the Writing Paper Manufacturers' Association. Again in the writing paper industry, he aided in the preparation of the Code and served as a member of the administrative body, The Writing Paper Executive Authority, until February, 1934, when he was obliged to resign because of the pressure of other activities.

The Northwest Paper Company, Cloquet, Minn., was formed on May 2, 1898. Operating mills as Cloquet and Brainerd, Minn., it produces about 150 tons daily. The company makes its own pulp and manufactures coarse, converting and fine papers.

Government Paper Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 24, 1936—The Cauthorne Paper Company has been awarded the contract for furnishing the Government Printing Office with 48,750 pounds (500,000 sheets) of 24 x 38, No. 40 white sulphite writing paper at 5.32 cents per pound, bids for which were received on June 8.

Bermingham & Prosser will furnish 36,000 pounds (90 rolls) of white sulphite writing paper in 23-inch rolls at 5.95 cents per pound; the R. P. Andrews Paper Company will furnish 36,000 pounds (115,000 sheets) of 41 x 52-inch single coated book paper at 6.35 cents per pound; the Whiting Paper Company will furnish 38,100 pounds (600,000 sheets) of 24 x 38, 25 per cent rag blue bond paper at 8.8 cents per pound. Bids for these items were received on June 5.

Barton, Duer & Koch Paper Company will furnish 13,600 pounds (50,000 sheets) of 26½ x 41 white coated cover paper at 6.63 cents per pound; the Virginia Paper Company will furnish 153,000 pounds (1,500,000 sheets) of 28 x 34 white sulphite writing paper at 5.33 cents per pound; the Virginia Paper Company will also furnish 44,250 pounds (500,000 sheets) of 23 x 36 white sulphite writing paper at 5.33 cents per pound; the Paper Corporation of the United States will furnish 15,075 pounds (150,000 sheets of 21 x 32, No. 56 white sulphite ledger paper at 6.31 cents per pound and Barton, Duer & Koch Paper Company will furnish 90,000 pounds (225 rolls) of white sulphite writing paper in 21 inch rolls at 6.17 cents per pound. Bids for all of these items were received on June 3.

The Mathers-Lamm Paper Company will furnish 60,525 pounds (225,000 sheets) of 38 x 48 halftone book paper at 5.08 cents per pound, bids for which were received on May 29.

The Whitaker Paper Company will furnish 5,000 sheets of 22 x 28 orange railroad board at $21.82 per M sheets, bids for which were received on June 10.

TAPPI Notes

R. A. Campbell who for the past few years has been at the Gypsum, Ohio plant of the U. S. Gypsum Company has been transferred to Oakfield, N. Y.

O. W. A. Rodowski is now with the Union Bag and Paper Corporation in Savannah, Ga., having just left the Filer Fibre Company of Filer City, Mich.

P. P. Hilton formerly of the Oxford Paper Company has gone with the Sandy Hill Iron and Brass Company of Hudson Falls, N. Y.

Boston Paper Industry News

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 22, 1936—The entire sales force of Carter, Rice & Co., Corp., visited the plant of the Oxford Paper Company, Rumford, Me., June 16 and 17, and was taken through the plant for a thorough inspection of the various manufacturing processes. The tour was followed by a talk given by Wilson D. Rogers, of the Oxford Paper Company, who explained in detail all the recent improvements. The company feels that their product now meets the printers' most exacting requirements. Among those who went on the trip were Frank H. Winter, sales manager; Robert H. Welsh, merchandising manager, and John F. Wilson, advertising manager.

The outing of Carter, Rice & Co., Corporation, with practically all of the employees and officials present, was held June 6 at the Stowe Country Club, at which all enjoyed themselves to the utmost. A buffet luncheon was served on arrival at the club. There was a program of field sports, swimming, tennis and golf in the afternoon. After the dinner, dancing was in order.

The Storrs & Bement Company has been having an exhibit of commercial printing gathered from all over the world, at which there has been a large attendance. The company announces the showing of their fall and holiday lines of papeteries and gift wrapping papers. This new line, presented by E. D. Wilcox, may be seen on the second floor salesroom.

Miss Nancy W. Graves, of East Walpole, Mass., daughter of George M. Graves, the well known paper stock dealer, was married June 13 to Richard Claybourne, of Malden, Mass., at the Union Congregational Church, East Walpole, by the Rev. J. R. Packard, pastor of the church. More than 250 were present at the ceremony.

Col. Edgar Smalley, managing director of Edwin Butterworth & Co., Ltd., Manchester, England, who has been in this country more than a month, including a visit to the Boston office, E. Butterworth, Inc., and passing a week each in Canada, New York and the South, sailed for England last Saturday.

Nathan S. Clark, president of Knight, Allen & Clark, went with his family to their summer home, Crystal Lake, N. H., Saturday.

H. A. Hartinger, of the Anchor Paper Company, St. Paul, Minn., a paper merchant, while in the East on a vacation, called at the offices of the D. F. Munroe Company and the Fort Hill Paper Company.

The Rockwood Paper Corporation has been incorporated at Boston with a capital of 200 common shares of stock of no par value. George E. Phelps, Scarsdale, N. Y., is president and treasurer; Gordon Blanchard, vice-president, and Ray P. Dunning is the third incorporator.

The Fort Hill Paper Company is to be closed all day Saturdays during July and August.

B. Edward Hutchinson, '09, who was the treasurer of the American Writing Paper Company, has been elected to serve a five-year term on the governing board of the Massachusetts Institute of Technology. Mr. Hutchinson is prominently identified with a number of motor companies.

Charles A. Adams, export manager of the Dennison Manufacturing Company, Framingham, Mass., was elected president of the Export Club of the Boston Chamber of Commerce at a meeting June 15.

Empire State Elects Officers

At the last annual meeting of the Empire State Paper Association held in the Ten Eyck Hotel, Albany, N. Y., the following officers were unanimously elected:

President: L. L. Hanlon, Alling & Cory Company, Buffalo, N. Y.; first vice-president: J. V. McCarthy, J. & F. B. Garrett Company, Syracuse, N. Y.; second vice-president: M. S. Wilts, Hubbs & Howe Company, Buffalo, N. Y.; secretary and treasurer: C. A. Morgan, Cramer Force Company, Rochester, N. Y.

The above, together with George Beggs of Hubbs & Hastings Paper Company, Rochester, and Sidney Jones of Hudson Valley Paper Company, Albany, form the board of directors.

The membership has increased considerably in the past two years, and commodity committees are active in conjunction with the National Paper Trade Association. Any wholesale paper house in New York State outside of the Metropolitan District is eligible for membership in the association.

New York Paper Men Play Golf

The 27th Annual Tournament of the New York Paper Trade Golf Association was held on Tuesday, June 16, at the Schackamaxon Golf Club, Westfield, N. J., and was attended by about eighty-five members and guests, including a gratifying representation from New England and the Middle West.

The Luke Trophy was won by Stub Early, who also carried off the Clarence Clough Trophy. Low gross honors went to Jimmy Leyden, with a score of 122 for 27 holes, and Tom Remsen won the Bud Earle Memorial Trophy.

At the meeting following the dinner, the following officers were elected for the ensuing year: President, D. C. Murchinson; Vice-president, A. G. Nelson; Secretary, W. M. Slocum; Treasurer, A. D. Williams.

Plans are already under way for even a larger tournament next year.

Crystal Cellulose Gift Tyings

In response to the growing interest in more profitable merchandise through better wrappings, the Crystal Tissue Company, Middletown, Ohio, has added a complete line of Crystal cellulose gift tyings. The company already manufactures a wide range of plain and printed tissues and the new tying line makes it possible to offer, from one source, every material needed for attractive gift wrapping.

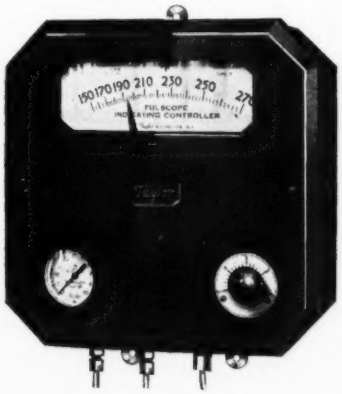
Crystal cellulose gift tyings, it is announced, will be available in plain colors and in a variety of printed designs with both everyday and Christmas motifs. It will be made in widths ranging from 5/16 inches to 2¾ inches inclusive, and will be put up both in bulk rolls in lengths up to 1000 yards to care for the needs of the retail and industrial trade, and in resale packages. Popular priced assortments of resale rolls are packed in attractive self-display cartons.

The new line enables the Crystal Tissue Company to offer a more complete service than ever before on gift wrapping supplies as well as on resale packages of these materials. Crystal gift wrappings and crystal gift tyings are expected to prove a particularly profitable combination in the approaching Christmas season.

Samples of both Crystal tyings and wrappings are available on request to the company.

Taylor Fulscope Indicating Controllers for Temperature and Pressure

For the many processes where close throttling control is imperative but a record of the processing is not essential, the Taylor Instrument Companies, Rochester, N. Y., have just put on the market a moderately priced, highly adaptable, air-operated controller of the indicating type.



Many of the design and performance features of this new instrument previously have been available only in the renowned Taylor Fulscope Recording Controllers; hence the name, Fulscope Indicating Controller. Practically every advantage of a custom-built instrument is possible through the great diversity of optional construction features. But of even greater importance is the simplicity of the numerous adjustments by means of which the controller may be adapted to any changes in future processing requirements.

The outstanding features are as follows: Either high-range or full-range sensitivity, as required. The former for processes having small time lags; the latter for time lags of any magnitude. Both are fully adjustable by turning a graduated dial. The control point may be adjusted to any value within the control range. Direct-set feature is optional. Controller action may be quickly reversed in the field by altering the position of a link. Many standard control ranges to choose from within the limits of minus 100 and plus 1200 F., or full vacuum and 3,000 lbs. pressure. Control ranges are interchangeable. Temperature controllers may be equipped with mercury-, vapor-, or gas-actuated tube systems. The large scale with bold numerals and graduations enable the operator to make accurate observations from a distance. The smartly designed, black finished cast-aluminum case is available in both face and flush mounting styles.

Full particulars are contained in Catalog 86R which may be had on application.

Fuess Oil Penetration Tester

The importance of practical methods for testing and predetermining if possible the conditions essential for meeting requirements of printing paper, makes it necessary for the industry to take advantage of tried and proven devices. A pamphlet recently issued describes the Fuess oil penetration tester, patterned after an instrument developed at Washington by the Government Printing Office which has been found to determine reliably ink receptivity, particularly in news and magazine papers.

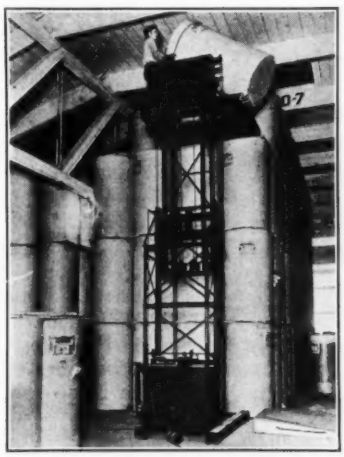
The method of operation is very simple. A drop of castor oil falls on the paper sample and the time interval during which it penetrates the sample is noted with a stop-watch. As a result of much study devoted to this subject by the Government Printing Office in Washington, the drop-castor oil test was found a very reliable method, particularly in regard to news and magazine papers. It was ascertained that the rate of penetration of castor oil definitely paralleled the rate of actual penetration of the inks used on such papers.

The instrument complete with 110 volt light, operating A. C. or D. C. current is mounted in a handsomely finished, substantially built cabinet of solid walnut. The light source is contained in back of the ground glass diffusing screen, which illuminates the reflection of the drop on the mirror which can be adjusted to the standing or sitting position of the observer. A well-constructed drop-funnel of good quality glass, polariscope tested for strain, has accurately fitting pet-cock and bore. It permits only one drop of oil to escape at a time.

The bulletin fully describing the Fuess oil penetration tester may be had from R. Fuess, Inc., 245 West 55 street, New York, N. Y.

New Paper Roll Stacker

A new portable elevator or stacker for stacking or piling heavy rolls of paper on end, to any height is shown in use in paper warehouse, illustrating an efficient and economical method of handling these bulky and difficult-to-handle rolls.



It is of the telescopic type, extending upward like an extension ladder, has steel arc-welded frame, free lifting and maneuvering handle, equipped with roller bearings, cable control, brake, and back brace for extra strength.

The specifications of this new stacker are as follows:

Standard design 2,000 lbs. capacity, height 20′ 6″, lifts 20′, collapsed height 12′, platform 60″ x 72″, speed 40 feet per minute, control locking cable on both sides. May be made any special size or capacity. Will pile cases as well as rolls.

Full illustrated circular No. 184 may be had on request to Lewis-Shepard Company, 175 Walnut street, Watertown, Mass.

Fully illustrated circular No. 184 on request to Lewis-Shepard Company, 175 Walnut street, Watertown, Mass.

Olivite Acid-Handling Pumps

Oliver United Filters, Inc., has just issued Bulletin 30Z which is entitled "Olivite Acid-Handling Pumps." The Olivite acid pump is said to combine utility and durability to a marked degree. Hydraulically, it has the simplicity and efficiency of a high-grade centrifugal water pump. Chemically, it is highly resistant to nearly all acids and corrosive solutions. In effect, the buyer of the Olivite pumps gets two pumps in one—an efficient centrifugal solution pump and a durable acid-handling pump combined into one unit.

Copies of this bulletin may be obtained by writing the company at 33 West 42 street, New York, N. Y.; 221 North LaSalle street, Chicago, and 351 California street, San Francisco, Cal.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Williamsport, Pa.—The Hilsher Paper Box Company, Day street, manufacturer of paper boxes and containers, plans extensions and improvements in plant, including installation of new equipment. Cost about $45,000, including equipment. C. E. Wentz is treasurer.

Wisconsin Rapids, Wis.—The Consolidated Water Power and Paper Company has plans maturing for rebuilding portion of dam at Biron, Wis., used for water supply for mill, comprising a gravity section about 242 feet long and gate section, 158 feet long. Work to be carried out will provide for increased water service. No official estimate of cost has been announced.

St. Paul, Minn.—The Rapinwax Paper Company, Como avenue, manufacturer of waxed and other processed paper specialties, plans early rebuilding of portion of plant, recently destroyed by fire. Loss reported over $75,000, including equipment.

Crossett, Ark.—The Crossett Lumber Company has awarded contract for electrical equipment for its new local kraft pulp and paper mill to the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., which will furnish motors and control apparatus, machine drives and other equipment. As recently reported in these columns, company is beginning erection of initial units of new mill, for which general contract previously was let to the Rust Engineering Company, Clark Building, Pittsburgh, Pa. Entire project will cost about $4,000,000.

Indianapolis, Ind.—The Girder-Bilt Box Company, recently organized by local interests, has leased space in building in the Marmon Industrial District, and will occupy the new plant for production of corrugated boxes and containers of standard and special type, including folding boxes. Equipment will be installed at early date for sizable capacity. New company is headed by J. R. Watkins and H. C. Stute. Last noted will be general manager, in charge of operations.

Everett, Wash.—In connection with proposed new additions to mill of Soundview Pulp Company, Everett, recently noted in these columns, City Council is arranging early special election to approve bonds for $1,300,000 for water supply facilities at the mill; the plant has asked for an immediate supply on basis of 12,000,000 gallons per day, and which requirements will be doubled at early date. Work will include a new pipe line, with pumping station and other equipment. Project will be carried out by the municipality, under direction of S. E. Payne, city engineer and water superintendent.

Hoboken, N. J.—Following recent acquisition of factory property at Twelfth and Monroe streets by the Universal Folding Box Company, 94 34th street, Brooklyn, N. Y., officials of that company have organized a new company under name of Universal Folding Box Company of New Jersey, Inc., to operate the plant noted for manufacture of folding paper boxes and containers, cartons, etc. Acquired property will be remodeled and improved, and will be made ready for service at early date, with estimated cost of about $50,000, including equipment. New company is capitalized at 100 shares of stock, no par value.

Fernandina, Fla.—The Container Corporation of America, Inc., 111 West Washington street, Chicago, Ill., manufacturer of corrugated paper boxes and containers, is arranging financing through the issuance of 200,000 shares of preferred stock, $50.00 par value, for construction of proposed new kraft pulp and paper mill at Fernandina, lately referred to in these columns, a considerable portion of the proceeds of the stock sale to be used for such purpose. New mill will be constructed and operated by a subsidiary interest, which will have a gross fund of $6,000,000 for the development. Plant will consist of several large units and work on initial buildings is expected to begin soon. George F. Hardy, 305 Broadway, New York, N. Y., is consulting engineer.

Cheboygan, Mich.—The North American Pulp and Paper Corporation, affiliated with the Simplicity Pattern Company, Niles, Mich., is running on a high production schedule for paper supply to the last noted organization, averaging on the basis of about 25 carloads per month. A large working quota is being employed. The Simplicity company, likewise, is running full at its paper-converting plant at Niles, with more than 600 persons now employed in different departments. Present schedules will be maintained at both plants for an indefinite period.

Drummondville, Que.—Canadian Celanese, Ltd., manufacturer of cellulose rayon products, has plans maturing for extensive expansion at mill, to include construction of new additions and installation of machinery for large increase in present capacity. A fund of about $750,000 is being arranged through the private sale of blocks of preferred and common stocks. Project will be carried out over a period of months. Company is now giving employment to about 3000 persons and this number will be increased considerably as soon as new mill units are ready for service. R. H. Sperling is general manager.

Burnie, Tasmania—The Associated Pulp and Paper Mills, Ltd., care of H. Brain, Collins House, Melbourne, Australia, secretary, recently formed with capital of $15,000,000, has plans nearing completion for proposed new pulp and paper mill at Burnie, and will soon take bids on general contract for initial units. Large tract of land has been acquired for mill site, including assets of Tasmanian Paper Pty., Ltd., and concessions for property at Kermandie, Tasmania. New plant will be given over to production of writing papers and other high grade paper stocks. It will comprise a group of large one and multi-story units for raw material department, pulpwood and digester divisions, finished paper mill, storage and distribut-

ing buildings, and miscellaneous structures. A power house, pumping plant and other mechanical departments will be built. Company is concluding financing in amount of about $6,000,000, the majority of proceeds to be used for new mill, including the development of extensive timber properties in the vicinity of the plant for pulpwood supply. Plant will be equipped for an initial rating of about 15,000 tons of finished paper per year. It is expected that work will be under way on buildings in the fall. Several large interests are identified with the new company through stock holdings, including the Amalgamated Zinc Company, Ltd., and Electrolytic Zinc Company, Ltd., both of Melbourne. The Government of Tasmania, also, is interested in the project.

New Companies

Boston, Mass.—The Rockwood Paper Corporation has been incorporated with capital of 200 shares of stock, no par value, to deal in paper goods of various kinds. George E. Phelps, Scarsdale, N. Y., is president and treasurer.

Pomona, Cal.—The Pomona Box Company has been chartered with capital of 5000 shares of stock, no par value, to manufacture and deal in paper boxes and containers, etc. Glenn Whitlock is one of the principal incorporators. New company is represented by Nichols, Cooper & Hickson, First National Bank Building, Pomona, attorneys.

St. Louis, Mo.—The Decorators Wall Paper Company has been incorporated with capital of $250,000, to manufacture and deal in wall papers. The incorporators include Carl F. Gissler and Raymond M. Freed, 208 North Broadway, St. Louis.

American Writing Sells Two Plants

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., June 23, 1936.—Announcement was made this last week of the sale of two divisions of the American Writing Paper Company, Inc., to the Holyoke Municipal Lighting Department for $55,000. The two divisions are the Holyoke Division on Main street and the George R. Dickinson Division on Sargent street. Both have been idle for some years.

The Holyoke Division was the second paper mill to be built in Holyoke. It was erected by D. M. Butterfield in 1857. The old Parsons Division, formerly the No. 1 mill of the Parsons Paper Company is the oldest Holyoke paper mill.

The Dickinson Division named after its founder began operations in 1883. The assessed valuation of the mill powers—hydraulic power—is $225,000 alone. The total assessed value was over $480,000.

The Dickinson Division being close to the electric works of the municipal plant will probably be used for expansion of that plant in part; possibly also for new industries of small size. The other division may also be used to house new industries.

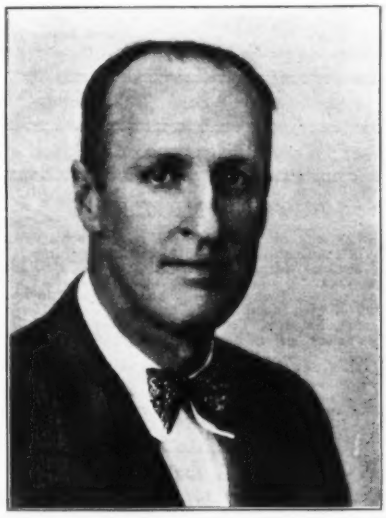
This is the largest mill transaction since the time that William F. Whiting of the Whiting Paper Company bought the mill properties of the Lyman Mills, a cotton cloth concern which had liquidated, for a fraction of their assessed value.

Charles G. Paine Made General Manager

Stuart B. Copeland, vice-President and general manager of the Eastern Manufacturing Co., has resigned to accept the presidency of the Northwest Paper Company of Cloquet, Minnesota, one of the outstanding paper mills of the middle west. The directors of the Eastern Manufacturing Company at a meeting Tuesday June 16, accepted this resignation with deep and genuine regret.

Mr. Copeland will be succeeded by Charles G. Paine, who has been a member of the Eastern organization for twenty years and its assistant general manager for the past six. The choice was unanimous, the directors feeling that he has given able and untiring service—winning the confidence of other executives, and the trust and respect of all employees. At this meeting, also, George P. Lee, sales manager of the company's general office in New York, was advanced to vice-president in charge of sales.

For the next two months—the period of adjustment—following these important changes—Mr. Copeland will remain with the Eastern Manufacturing Company as vice-president and one of the directors. Late in August, according to his present plans, he will go with his family to their new home in Cloquet, which is about 18 miles from Duluth.



CHARLES G. PAINE

Mr. Paine, who begins his new and increased duties immediately, was born in Dover, Mass., in 1891. After completing his high school studies he took a course in Chauncy Hill Preparatory School in Boston—a special preparatory school for Technology students. He then entered Massachusetts Institute of Technology, from which he was graduated in the class of 1915.

Joining the staff of the Eastern Manufacturing Company in 1916, he was first assigned to the Katahdin division at Lincoln as mechanical engineer. His service record there attracted the attention of the company's executives, and he was advanced to mechanical superintendent. In 1918 he was called to the Eastern plant in South Brewer, to aid in its mechanical development, and he was made its general mechanical superintendent in 1920.

He continued in this position ten years. His quiet efficiency, his knowledge of almost innumerable details in an intricate and extensive business, were recognized throughout the organization, and there was general satisfaction when, in 1930, he was promoted to assistant general manager. He now, with the position of Vice-President and General Manager, assumes direction of the properties in South Brewer and Lincoln.

George P. Lee, who is advanced from general sales manager at the company's New York office, 500 Fifth avenue, to vice-president in charge of sales, has for 14 years been a member of its sales organization. He has been general sales manager since Feb. 1, 1932.

PAPER TRADE JOURNAL
ESTABLISHED 1872
Reg. U. S. Pat. Off.
15 West 47th St., New York, N. Y.

Henry J. Berger
Editor

Ronald G. Macdonald
Editor Technical Section

Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Lynne M. Lamm
Washington Correspondent

Price, Per Copy, 10 Cents
United States, Per Annum, $4.00
Canada and Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. CII New York, June 25, 1936 No. 26

FUTURE MEETINGS

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Summer International Meeting in Canada, August 3 to 7, Montreal, Quebec, The Saguenay. Details may be obtained from the secretary, R. G. Macdonald, 122 East 42nd street, New York.

NEW ENGLAND SECTION, Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Nonotuck Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION, Technical Association of the Pulp and Paper Industry—fourth Friday of each month at the Engineers Club, Philadelphia, Pa.

KALAMAZOO VALLEY SECTION, Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park-American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS' ASSOCIATION, Annual convention, Grand Rapids, Mich., June 24-26, 1936.

A MEASURE OF PROGRESS

The National Exposition of Power and Mechanical Engineering will be held from November 30 to December 5 inclusive, co-incidental with the annual meeting of the American Society of Mechanical Engineers.

The exposition this year is expected to be more comprehensive than in the past. The improvement in business will be one influence, and the great interest which manufacturers have developed in their products through research developing new products and improvements on standard products will make the exposition very interesting. There will be large and heavy equipment from equipment used in the generation of power, its distribution and utilization through mechanical equipment for handling materials, tools and various other mechanical devices. There will be the usual large grouping of refractories, stokers, burners and fuel burning equipment of various types, boilers and power generating equipment, engines, pumps and steam equipment, piping, valves, fittings, showing all the recent developments in these lines, and supplies used co-incidental thereto, instruments of precision for control and measurement of volume, speed, rate of flow, pressure, time and other numerous factors which must be known in industrial operations. There will be the whole range of material supplies, lubricants, packing, belting and other incidental products, tools and machine tools, etc.

The Power Show is a measure of the progress of the power and mechanical engineering industries. The progress of these industries is a measure of the progress of man, and all men are interested in seeing how far they have come along the road of civilization, how they may discover a short-cut, or construct a better road. To exist we must have manual labor or its substitute, power machinery. To progress we must have thought and visualization. The invention and improvement of power machinery, gradually releasing human beings from manual labor, gives more people greater leisure to think and visualize.

Recognition of importance due them was accorded the power and mechanical engineering fields when, in 1922, the Power Show was established. Before that time there had been fairly good groups of fuel economy exhibits at the Exposition of Chemical Industries. These followed the apprehension of wasteful operations, resulting from the lack of combustion equipment, stokers and other power machinery best suited to individual needs. Several persons interested in power machinery suggested that the fuel economy equipment comprise a separate show

Two years of study and investigation of needs resulted in the First National Exposition of Power and Mechanical Engineering in December, 1922. At that time, when the power generating industries were in a state of flux the Exposition was a catalyst hastening the developments of today.

Present improved economic conditions and the widespread need for replacement of old machinery combine to incite public interest in power equipment and its accessory materials. Some persons envision new uses for non-corrodible metals. Others discuss welding improvements and evince interest in underground steam conduits and improved thermal insulation. Ever present is the keen rivalry between the advocates of group drives and individual drives.

Pros or cons may be corroborated at the Power Show. Sales and the furtherance of company prestige will be an incentive for wholesome competition. The Power Show sets a standard. It stirs up stagnant companies and spurs on to greater achievement those who have accomplished much, yet envision more.

NEWSPRINT PRODUCTION INCREASES

Production of newsprint in Canada during May 1936 amounted to 267,067 tons and shipments to 286,445 tons, according to the Newsprint Service Bureau. Production in the United States was 75,719 tons and shipments 77,062 tons, making a total United States and Canadian newsprint production of 342,786 tons and shipments of 363,507 tons. During May, 26,915 tons of newsprint were made in Newfoundland, so that the total North American production for the month amounted to 369,701 tons. Total production in May 1935 was 357,507 tons.

The Canadian mills produced 164,959 tons more in the first five months of 1936 than in the first five months of 1935, which was an increase of fifteen and seven tenths per cent. The output in the United States was 2,664 tons or seven tenths of one per cent less than for the first five months of 1935, in Newfoundland 10,421 tons or seven and six tenths per cent less, and in Mexico 7,982 tons less,

making a net increase of 143,892 tons, or nine and one tenth per cent.

Stocks of newsprint paper at Canadian mills were reported at 66,240 tons at the end of May and at United States mills 15,906 tons, making a combined total of 82,146 tons compared with 102,867 tons on April 30, 1936.

New Machine Preserves Paper

A device which protects documents from the ravages of time has been invented by a New York physician, Dr. Joseph Broadman, says the Broadman Library, 110 West 42nd street, New York. Four years of intensive study were spent by the doctor to perfect this machine which has many notable advantages over any preservatives now in use.

Formerly, preservation processes made it necessary to treat each sheet by hand and caused noticeable decreases in legibility and gave the sheet a rigidity unnatural to the original state. This machine now overcomes these disadvantages and, in addition, materially increases the tensile strength of the treated paper. Long an experimenter in this field, Dr. Broadman's tests prove that the new machine does a far better job than paper preservatives now in use. His latest samples are at least 30 per cent better than earlier ones. Some work has already been done for Princeton University and the New York Public Library. The new process has been issued patents by the United States Government. Samples of documents preserved by the new process will be exhibited shortly by the National Library, in Peiping, China.

Logically enough, the chief reason for the doctor's research in the field of paper preservatives is his keen interest in his novel hobby, a library of the World War, which he has been assembling for twenty-two years. Because of the historical value of this comprehensive and unique collection of thousands of publications, Dr. Broadman was faced by the necessity for preventing paper decay so that his library might be preserved for future use. Already, the new machine is being used on his collection to prevent the damages of age. Dr. Broadman has offered to treat free of charge all documents pertaining to the World War or Post War period that anyone may have and may wish to house with the library. When each document has been treated by this method of preservation it is planned to make the library available as a source of reference to scholars, writers and students of this period of history. It will also be available, to qualified persons who may wish to compare the various contemporary national trends and schools of thought.

Sorg Paper Co. Acquires Bag Concerns

The Sorg Paper Company of Middletown, Ohio, announces that it has acquired the assets of the Superior Bag and Paper Corporation and the Lawrence Bag Company both of Middletown, Ohio, and will continue their operation as the Superior-Lawrence Bag Division of The Sorg Paper Company under the management of E. E. Brown.

Robert Gair Co. Declares Dividend

A dividend of seventy-five cents a share upon the preferred stock of Robert Gair Company, Inc., was declared at a meeting of the board of directors on Thursday of last week. The dividend is payable on June 30, 1936 to preferred stockholders of record at the close of business on June 18, 1936.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES

Month	1936	1935	1934
January	76.1%	65.8%	.....
February	77.9	70.0	.....
March	76.0	70.5	.....
April	82.3	70.0	.....
May	81.3	69.4	.....
June	.....	72.3	.....
July (b)	.....	67.8	.....
August	.....	70.9	.....
September (c)	.....	75.0	59.4%
October	.....	75.6	64.7
November	.....	75.3	61.7
December (a)	.....	74.3	62.1
Year	.....	71.2	.....

COMPARATIVE WEEKLY SUMMARIES

Current Weeks, 1936		Corresponding Weeks, 1935	
* May 9	81.6%	May 11	69.1%
* May 16	82.0	May 18	70.7
* May 23	82.5	May 25	68.4
* May 30	79.0	June 1	68.9
* June 6	81.7	June 8	70.5
* June 13	79.1	June 15	71.7

The following statistics show the number of mills reporting by ratio groups:

NUMBER OF MILLS REPORTING, CURRENT WEEKS

Ratio Limits	May 9 1936	May 16 1936	May 23 1936	May 30 1936	June 6 1936	June 13 1936
0% to 50%.....	76	77	79	95	76	71
51% to 100%.....	261	260	254	236	252	173
Total Mills Reporting	337	337	333	331	328	244

* Subject to revision until all reports are received.
These data exclude (a)—Christmas Day, (b)—Fourth of July, (c)—Labor Day.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours," were as follows:

1934		1935		1935		1936	
September	62%	January	61%	July	59%	January	61%
October	63	February	67	August	65	February	67
November	56	March	67	September	69	March	68
Dec. (a)	53	April	61	October	76	April	70
		May	61	November	70	May	68
		June	65	December	60		

Week ending June 6, 1936 ..... 65%
Week ending June 13, 1936 ..... 71%

The S K F Grip-Lock Bearing

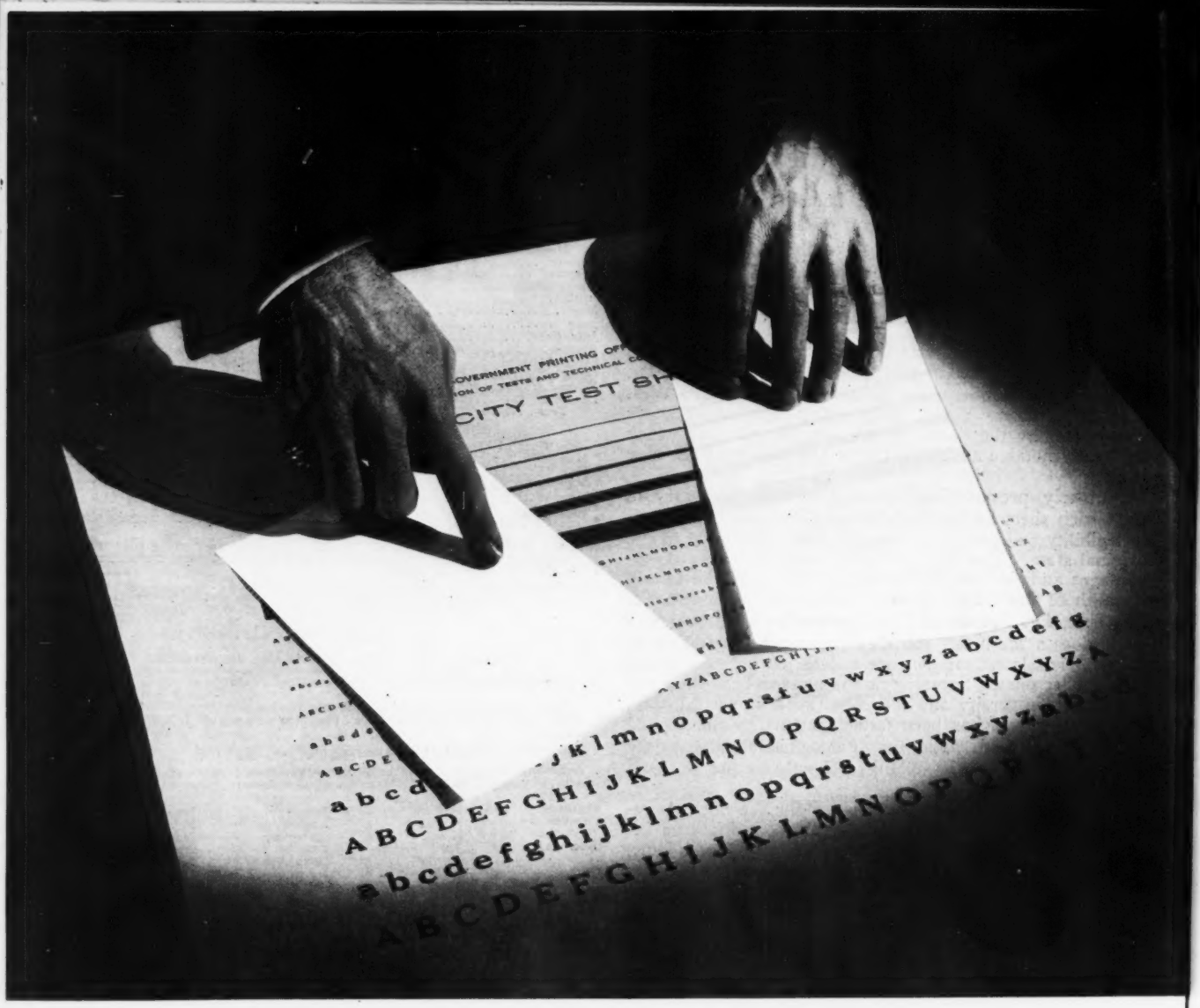
The S-K-F Grip-lock bearing is the latest addition to the famous S-K-F line of anti-friction bearings, comprising in all more than 1,200 sizes and types of ball and roller bearings.

The Grip-lock principle offers the advantage of quick, simple application of the bearing without tools of any kind and insures the user of a bearing positively locked to the shaft.

Essentially, the bearing is the conventional, well-known S-K-F self-aligning extended inner race bearing with an eccentric groove machined in the bore of the inner race. Fitted in the eccentric groove is a piece of spring steel known as the Grip-lock shoe. When the shoe is in the deepest part of the eccentric groove the bearing may be readily slipped on the shaft. Then, by holding the inner race of the bearing while the shaft turns in the direction of operation, the knurling at the ends of the grip-lock shoe grips the shaft causing the shoe to wedge in the shallow part of the eccentric groove thus securely locking the bearing on the shaft.

Many thousands of these bearings are now used in various machines. The simplicity of assembly without necessity for shaft machining has resulted in their use in many locations where plain bearings were considered standard.

Users report substantial savings in assembly cost and more satisfactory results from these bearings as no radial slippage can occur, for the more the load, the tighter the grip locks.



"Now there's an OPAQUE sheet"

Salesmen are encountering many comments such as this when offering the new improved lines—more opaque, whiter and brighter papers that arouse enthusiasm among paper dealers, printers and consumers.

Because the desired degree of these qualities can be obtained by CRYPTONE and ALBALITH Zinc Sulphide Pigments, which are available in a range of strengths to meet a variety of requirements, the use of these pigments is increasing.

The trade is looking for these qualities. . . . Our Technical Service Department is ready to cooperate with you on any phase of this development.

New Jersey Zinc

THE NEW JERSEY ZINC COMPANY 160 FRONT STREET, NEW YORK

ZINC SULPHIDE PIGMENTS IN PAPER

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Analysis and Testing

Data for the Interpretation of the Analysis of Water. L. Suran. Papier-Fabr. 33, No. 21: 181-83 (May 26, 1935). Necessary conversion factors and equations in the analysis of water hardness. One degree hardness, German, is equivalent to 1.79 degrees hardness French and 1.25 degrees hardness English. One degree hardness German is equivalent to 10 milligrams of calcium oxide per liter.—J. F. O.

Moisture Determination of Wood. Edgar Morath, Darmstadt. Zellstoff-Faser, 32, No. 1: 2-8 (January, 1935). The various methods for the determination of moisture in wood are discussed; one being the measurement of the electrical resistance of the wood. A comprehensive list of references are given.—J. F. O.

Absolute and Relative Viscosity. August Noll & Fritz Bolz. Papier-Fabr. 33, No. 23: 193-97 (June 9, 1935). The authors discuss: the purpose of viscosity determinations, various ways of expressing the results, the meaning of absolute (dynamic kinetic and specific) viscosity versus relative viscosity, the new Ubbelohde capillary viscosity meter with suspended level and comparison of results with the relative viscosity of Ost and of Engler, and the practical linear function between the absolute, kinetic viscosity (Ubbelohde viscosity meter) and relative viscosity according to the Ost and Engler viscosity meter. The Ubbelohde viscosity meter is favored by the authors.—J. F. O.

Determination of the Methoxyl Groups in Wood. Remarks on the method described by W. Ender, K. Storch and I. Wenzel. Angew. Chem. 48:513-514 (1935); C. A. 29:6423.—Ender's method was somewhat modified by adding potassium hydroxide to the distillate from the sulphuric acid distillation, which contains the methyl alcohol. Without potassium hydroxide addition, the values as determined by Ender's directions were 10-25 per cent low. Check results on vanillin are reported, together with determinations on pine, red beech and fir wood which agree well with other literature data.—C. J. W.

Possibilities of the Use of Filtered Ultra-Violet Light in Paper Making. Maurice Déribéré. Papier 38: 637-640 (July, 1935).—A brief discussion showing the possibilities of the applications of ultra-violet light analysis in the paper industry.—A. P.-C.

Microscopical Determination of the Resin Content of Pulp. Papeterie 57: 546, 549 (June 25, 1935).—A good idea of the resin content of chemical pulp is easily and quickly obtained by staining with a saturated solution of Sudan III in 70 per cent alcohol and examining microscopically.—A. P.-C.

Sheet Forming and Slowness Testing. Arthur B. Green. Paper Industry 17: 164-167 (June, 1935).—A discussion of the development of slowness testers, bringing out the simplicity of design and operation of the Green 1933 Standard Slowness Tester.—A. P.-C.

The Factors Involved in the Accuracy of Fiber Analysis. John H. Graff. Technical Association Papers 18: 197-211 (1935); Paper Trade J. 101, No. 2: 36-50 (July 11, 1935).—Satisfactory methods for preparing slides and for counting fibers are described. Using this technic, the author has gone with some detail into the accuracy to be expected from a single analysis, and has made a practical application in determining the uniformity of a fiber furnish across the machine direction of a sheet of paper.—A. P.-C.

An Instrument for Formation Measurement. Myrl N. Davis, Walter W. Roehr and Homer E. Malmstrom. Technical Association Papers 18: 386-391 (1935); Paper Trade J. 101, No. 4: 31-36 (July 25, 1935).—An instrument which measures the perfection of formation of any sample of paper in terms of a single coefficient called the "formation number" of the sample is described. It is shown that the formation number of any sample should be a fairly accurate measure of the reaction of the observer to those properties of a sheet of paper, which are observed when the "look through" of the sample is examined and which would be expected to govern the decision that that sheet of paper is more perfectly formed than some other.—A. P.-C.

Animal Glue in the Paper and Paste Board Industry and in Making Special Papers. Fritz Ohe. Kunstdünger u. Leim 32:20-22, 45-49, 118-120, 145-148, 175-178 (1935).—A review.—C. J. W.

The Origin and Development of Cultivated Plants*

by A. B. Stout[1]

(This lecture was amply illustrated by lantern slides, without which the various matters discussed will be less fully appreciated and understood.)

1—All cultivated plants arose directly or indirectly from wild plants.

2—Many of the most important cultivated plants, and especially of the food plants, were in cultivation long before the time of written history.

3—At the time of the discovery of America there was no plant in culture in both the Old World and the New World. The pre-Columbian agricultures of the two worlds were independent.

4—More different kinds of cultivated plants originated in the Old World than in the New World.

5—The most important cultivated plants have become widely distributed and taken far from their native homes.

6—Not one important plant cultivated about New York City is, or was native here. Various native species, as of the wild grapes, were, however, used in hybridization with Old World species to give certain of the cultivated varieties.

7—Cultivated plants are usually very different from their wild ancestors in horticultural characters, such as size and diversity of fruit, and vigor of growth, but not different in essential botanical characters.

8—Cultivated types of plants have been developed from wild plants (a) by selection of natural variations and mutations; (b) by hybridization; and (c) by selective breeding.

9—Experimental breeding and studies of the chromosone behavior in the reproductive cells have revealed many facts regarding heredity, variation, and how new types of plants may originate.

10—There is still opportunity for the introduction of new plants into all parts of the earth, for the improvement of wild types, and for the further development and improvement of types now in cultivation.

When we speak of the origin of a cultivated plant we usually refer to the place where it was first cultivated, to the time in history or in prehistoric age when it was cultivated, and to the peoples who did the first planting or the first cultivating. In other words, we speak of the time, the place, and the people involved.

When we speak of the improvement of a cultivated plant, however, we refer to how that plant has been changed and also to the methods and the biological principles that are involved. Man is especially interested in these matters because he wishes to use such methods deliberately in the further improvement of cultivated plants.

When one looks at a map of the world he is reminded that there are two great land areas and that they are separated widely, except at the extreme north, by large stretches of ocean areas. Both the Old World and the New World extend from the far north to the far south through arctic, temperate, and torrid regions. A wide diversity of climate is present in both of these land areas and there is a great variety of habitat as to mountains, plateaus, lowlands, deserts, and distribution of rainfall. These factors naturally contributed to the origin of a wide diversity of plant and animal life.

The various lines of knowledge regarding the origin of our important cultivated plants show very clearly that there were few important centers in which most cultivated plants originated. One of these was the ancient land of Ethiopia and another was what is now Afghanistan. Two centers of origin were in southeastern Asia, and one or two minor points of origin were in southern Europe. In our own country there were two important areas; one in the highlands of Mexico and one in Peru. These centers for the origin of cultivated plants were in upland regions. Civilizations and the ancient agricultures started in the uplands. The nations most prominent in early history, as those of the Egyptian and Mesopotamian regions, are rather secondary and the crop plants *exclusively* grown in lowlands appear to be more recent developments. The larger number of cultivated plants originated in the Old World and this is to be expected because the land area is much more extensive and the civilization is much older. Of the 250 most important cultivated plants about 200 originated in the Old World and 50 in the New World: a ratio of four to one.

Another interesting fact is to be noted. At the time when Columbus discovered the New World there was no plant in common cultivation in the two areas. The pre-Columbian agricultures of these two main land areas were entirely independent although there were representatives of the same genus, or more often of the same family, in both. This indicates very plainly that when man migrated to the New World from the Old, as he undoubtedly did, he brought no plants with him. Possibly he did not cultivate any plants when he came.

It is obvious to you that it will be impossible in the short time at our disposal today to consider all of the 250 most important cultivated plants. What I plan to do is to discuss a few plants which illustrate the most important factors in the development of plants.

Cultivation of Wheat

I suppose there is no plant more important to the human race, or at least to the white race of the human family, than the wheat plant. Wheat has become a staple and important crop that is widely cultivated.

The wheats originated in two important centers: one in Ethiopia and one in the Afghanistan region. There are three main classes of wheat. One is a type that still grows wild and is used by the mountain peoples in various parts of the Old World. It is not a very productive type and is the simplest of all wheats with a chromosome number of 14 which is the lowest for wheats. Another type is the Durum wheats which are very resistant to rust but relatively poorer than the bread wheats. That is the type found in the ruins of Troy. The bread wheats which are familiar to us are the most valuable of the wheats at the present time. These were developed chiefly in south-western Asia. The cultivation of wheat spread throughout much of Europe and Asia in pre-historic time.

When the white man came to America he brought wheat with him and at that time there were many kinds. The three main groups of wheat had been developed until there

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 17 to 20, 1936.

[1] Director of Research, New York Botanical Gardens, Bronx, N. Y.

were about 15 natural types or developed types. Then further there were perhaps hundreds of varieties, illustrating how variation followed by selection operates in plants long cultivated.

The developments of wheat in America illustrate how social, economic, biological, and environmental conditions may all combine to influence the type of plants that are developed for culture. First of all, there has been during this last hundred years a great extension in the area in which wheat is cultivated. The areas have been extended far into Canada where almost no other important crop can be grown and where the wheats which are planted in autumn often suffer severely from winter freezing, because of the short-growing season, and the spring wheats often do not ripen before autumn frosts arrive. So it was impossible to grow many of the older wheats with certain success in the more northern areas. Therefore it was necessary to develop new kinds of spring wheats which mature in a shorter period of growth.

Another important influence arose in relation to the manufacture of flour. In the earlier days and even no longer than thirty or forty years ago, local flour mills were scattered over the country. In my boyhood days it was an event to load up some wheat about three times a year and take it to the mill located on a stream. The grist of wheat was ground into flour and brought home. There were many kinds of wheat grown but it didn't matter to the miller whether some of them were poor or not. Each farmer took his own flour. But this has been changed in our lifetime and now the wheat is manufactured into flour in a few centers where large mills are constructed.

The larger millers found, as you will readily recognize, that it was impossible to make a uniform flour from many different kinds of wheats. Also it was soon found that the so-called hard wheats make a better and a more granular flour and give more pounds of flour from a bushel of wheat. Naturally the millers paid higher prices for what they considered to be the better class of wheat.

A third factor operated. Many of us remember the time when every housewife made all the bread used by the family. Today the art of bread-making, we are told, is a lost art in the home. Bread comes to the home from the baker. The baker did not want flours of many kinds and of uncertain quality. He found that the flour from hard wheats make better loaves of bread; there is more gluten; more water is absorbed and thus more pounds of bread can be made from a given quantity of flour and also lighter and more spongy bread can be made. Fifty years ago much of the bread which was made at home was poor bread according to present standards.

One hundred years ago there were many sorts of wheat in culture. About that time the first outstanding variety known as the Red Fife wheat appeared. It happened that a Scotchman who had moved to Canada obtained some wheat from Europe. The precise locality from which it came is not known. He planted the seeds but only one plant matured before frosts came. He collected the seed from this plant and the progeny became known as the Red Fife wheat, which was perhaps the first really fine bread-wheat suitable for extensive culture in Canada. Nothing further was done in developing outstanding wheats until fifty years later when a Canadian by the name of Dr. Saunders worked on wheat. He collected wheats from many parts of the world, planted them in Canada, and studied their characters and behavior. He also began breeding different kinds of wheat. The Red Fife wheat (the best wheat at that time) was a hard wheat and it was a spring wheat. Dr. Saunders crossed it with a still earlier spring wheat which came from northern India, which is near the center where wheat originated, and in five years breeding he developed what is known as the Marquis wheat. The Marquis wheat matures throughout a wide area in Canada before the usual frost; it is a hard wheat, and it is very productive. It has become an important variety widely cultivated in the wheat growing areas of North America.

This illustrates how the agricultural needs for extending the culture of the wheat plant, the miller's demands, the baker's requirements, and the public taste for spongy bread have all combined to influence and direct the development of new varieties of wheat. These needs were finally met by a deliberate project in hybridization and selective breeding.

There is much yet to be accomplished in the improvement of wheats. The wheats now cultivated are more or less susceptible to rust. It happens that the Marquis wheat is susceptible to rust but that it usually ripens before the rust gets started. There is an opportunity for further improvement in wheat, especially in respect to immunity from diseases.

Cultivation of Corn and Other American Plants

Another crop that we are familiar with is the American corn or maize. That is strictly an American plant and the development of all of the several distinct types of this plant was done by the Indians. The wild ancestor of the maize is not known with certainty. Maize may have arisen by some mutation or by hybridization.

It will interest you to know that sweet corn is of relatively recent origin. Sweet corn was not known to the white man until the time of the Revolutionary War when General Sullivan made his raid through what is now northern Pennsylvania and western New York State. Along the Susquehanna River the soldiers noted that the Indians were growing sweet corn and they brought this type of corn back to the white settlements. All the different varieties of sweet corn of today have been developed since that date by selective breeding and hybridization.

The white race has taken the types of corn which the Indian had, and improved them by selective breeding so that the crops now grown are more productive than those that the Indian raised. Of course better methods of cultivation are a factor in increasing production.

Another strictly American plant is the pumpkin. Both the pumpkin and the squash are American plants. The pumpkin is a most diverse species. There are hundreds of so-called gourds which are not true gourds but pumpkins. Some of them have hard shells and were very valuable to the Indians for use as jugs, dishes, and containers of all sorts. Other types of pumpkins are fleshy and useful for food and these include the various pie pumpkins and the so-called summer squashes.

Various types of pumpkins of pre-Columbian culture were represented in pottery vessels made by Indians. The art is so realistic that one readily recognizes in these pottery vessels such varieties as the crook-neck summer squash and others of the rounded shapes.

Much direct knowledge regarding the food plants of the pre-historic Indians is gained from the food products placed in the burial tombs. Among the foods that were found with Peruvian mummies were lima beans, corn, peanuts, dried sweet potatoes, and Irish potatoes.

Reproduction in Plants

Most of the development of plants by our ancestors was so to speak, pure luck. Selection of most desirable variations was continued in some cases for centuries and this procedure did bring results. Nature was doing much of the breeding by furnishing the variations and mankind was using these by making mass or group selections of seed

parents. But it is only within the last hundred years, mostly since Darwin's time, that man has understood the principles involved in breeding plants and deliberately used them. The fundamentals of sexual reproduction in flowering plants are rather simple. The hermaphrodite plant has two sexual organs: stamens and pistils. A plant has, most often, two parents just as you and I have two parents. The pollen is carried about by insects, by wind, and by various other ways so that the pollen that reaches the pistil may come from its own flower or from some other plant. The pollen grains germinate on the stigma and grow into pollen tubes which penetrate to the ovules. The pollen tubes carry the male sperms to the egg apparatus where fertilization occurs. Then the new embryo that develops inside the seed may have two distinct parents depending on where the pollen comes from that has functioned.

And so there are two critical periods in the reproduction of plants. One is in fertilization at which time two different sets of germ-plasm units get together to live during the life of that particular plant. The second critical stage is when spores are produced by the very complex process of reduction divisions during which the two sets of chromosomes from the two parents are associated together and then redistributed by chance to give as many different combinations in single sets of chromosomes are as possible. In the garden lily, for example, there are 24 of these chromosomes; 12 from one parent and 12 from the other. When spores are being formed these chromosomes associate in pairs and then they are redistributed in sets of 12 so that there can be 4096 (2^{12}) different combinations of the chromosomes according to the laws of chance. Then these different spores proceed to form pollen tubes and egg cells and when fertilization occurs the different recombinations possible for the twelve pairs of chromosomes is nearly 175,000. The amount of diversity which appears in the progeny depends on the differences in the hereditary factors which are present in the various pairs of chromosomes that come from the parents.

Many hereditary differences arise naturally in plants by variation and mutation and also by irregularities in the numerical distribution of hereditary units. Hybridization also brings together different hereditary units. Selection for variations which appear either from changes in hereditary units or from recombinations after hybridization give such distinct varieties as exist in corn, in wheat, and in the pumpkin. And many of these appeared and were selected by primitive peoples long before the dawn of written history.

Modern methods of breeding control the parentage not only for the seed parent but for the pollen parent as well. This is often continued for several generations of selection for desired characters. Hybridization may be, and often is, followed by selective breeding.

Various commercial seed firms now employ modern methods of breeding in eliminating poor strains and in developing new varieties both by selective breeding and by hybridization. Plants are isolated in cages during the time when seeds are obtained by controlled pollination. Then the progeny of known pedigrees may be grown, tested, and used in another generation of selection. When a purified and improved strain or a new variety is obtained which breeds true, it may be grown as a standard field crop.

With control of both parents and comparative studies of pedigreed progenies, the results of breeding are evident and certain and largely accomplished in a few generations.

A few years ago a single plant of a species of coneflower *(Rudbecka laciniata)* was found in which all the disc flowers of the head were changed to conspicuous ray flowers. Such sudden changes in character are called mutations. In this case the plant is a perennial and so the one plant of this new type was propagated by division of the underground root stalks to give the clonal variety known as Golden Glow. The plant is sterile and so it is fortunate that there is a vegetative means of multiplication.

Recent developments in the nasturtium illustrate how new types which arise by mutation may be used in breeding. About fifty years ago a lady who was visiting in Mexico observed in a garden plants of a double-flowered nasturtium that had a sweet odor. The type produces seed and this lady obtained seeds and gave them to friends in California. This variety was grown and passed from friend to friend for nearly 40 years before it came to the attention of a commercial seed firm. But finally in 1932 this type was distributed by the Bodger Seeds Company under the name Golden Gleam nasturtium, and in that year this plant took a first prize in the All-American Competition of New Flowers.

At this stage the W. Atlee Burpee Company began a project of deliberate breeding which aimed to produce the double-flowered type in various colors. The double Golden Gleam was hybridized with single nasturtiums in various colors such as scarlet and dark red. The immediate progenies (the F_1) were single-flowered and of various colors for doubleness in this case is recessive to the single-flowered character. The F_1 hybrids were grown in large numbers and self-pollenated and I believe more than 100,000 seeds were obtained from which an F_2 generation was grown. According to the Mendelian law of segregation and recombination of hereditary characters, about one-fourth of this generation was double-flowered and of course there were various colors. These are now being distributed to gardeners.

In order to gain a year on other firms that might also be doing similar breeding, the W. Atlee Burpee Company grew a crop during our northern winter by sending seeds to tropical regions, to South America, and even to Australia. It is said that about $10,000.00 were expended in this breeding project.

Producing of New Varieties of Grapes

I wish to illustrate with grapes how different species from different parts of the world have been used in hybridization to produce new types. For over three hundred years the colonies here in America tried to grow the viniferous grapes of southern Europe. They failed for the reason that these grapes are too tender for the New England States and also they are susceptible to the grape root-louse.

There were however various species of native grapes growing wild in America and the fruit of these was collected and to some extent used, but these grapes were considered of little value for culture. The first good hardy grapes for the New England area were hybrids between the tender vinifera grapes and certain of the native wild species. During the past twenty-five years many new and excellent varieties of grapes have been obtained by further selective breeding.

It has been my privilege to work on a project of breeding which aims to develop hardy seedless grapes of value for culture in such a climate as that about New York City. There are several clonal varieties of seedless grapes that have long been cultivated in the semi-tropical areas about the Mediterranean Sea. Some of these, as the Sultanina or Thompson Seedless grape, are grown commercially in California but are not hardy here about New York. Several of these tender seedless grapes were used as pollen parents in crosses with hardy seeded grapes and some of the off-

spring obtained are both hardy and seedless. At the present time we have 83 such seedlings that bear seedless fruit. Several of the best of these are being propagated vegetatively as clonal varieties for trial culture. One has been named the Bronx Seedless Grape. This work is being done in cooperation with the New York State Experiment Station at Geneva, N. Y.

Selective Breeding and Hybridization

The results that may be obtained by hybridization may be illustrated further in the daylilies. A few years ago The New York Botanical Garden obtained from China plants of a hitherto unknown daylily which flowered in autumn after other daylilies had ceased to bloom. By hybridizing this late-blooming orange-flowered daylily with types which have fulvous red flowers a wide variety of colors was obtained in the flowers of seedlings which bloom during September.

Daylilies with rosy-pink flowers were also obtained from the wild in central China and when these were used in breeding, seedlings were obtained which have flowers in a range of pink and rosy-pink shades.

Repeated selective breeding may give a rather distinctly new type. It is not possible to get seeds by selfing or crossing the two old types of fulvous daylilies then available on account of the sterility of imcompatibility. After hybridizing each with yellow-flowered types certain of the progenies were crossed. Selections for increase in red coloring were made for five generations when a type with dark mahogany red flowers were obtained. All the sister seedlings of this particular generation had the dark purplish flower colors and their progenies give only this type of flower. The pigment colors of the original parents were intensified in degree and increased in amount. The hereditary elements which contribute to this formation of pigments were combined by the selections. The process may be compared in cards to getting pairs of aces, kings, queens, jacks, etc., of one color into on hand.

I shall now illustrate and attempt to explain how hybridization may result in what may be called new species of plants. The two species *Primula verticellata* and *Primula floribundo* are natives of different parts of the world. They were brought into cultivation in England and a hybrid was obtained which was larger and more robust and more floriferous than either of the parents. This hybrid was sterile, as hybrids often are, but it was propagated by division and rather widely grown in greenhouse culture. Finally a gardener noticed that a plant of this hybrid produced a few seeds. They were planted and the plants which grew were larger, more floriferous, and finer than the hybrid parent.

Furthermore, they were highly fertile and the progeny were uniform in character.

The explanation of what happens in such cases is indeed interesting. The original hybrid received a pair of chromosomes from each of its parent species but these two different sets are not able to pair in harmony when spores are being formed and consequently there is abortion of spores and sterility. This is a frequent condition in hybrids. When a few seeds were obtained the new type that grew from them was found to have not two sets of chomosomes but four sets. Each parental set had doubled either in the somatic cells of a flowering branch or during reduction and fertilization. This doubling of sets of chomosomes is known as polyploidy. Balanced polyploids which have four or more sets of chromosomes are often highly fertile, they are usually robust or giant plants, and they may be so different from the original parents that they are to be classed as new species. Polyploidy with or without hybridization has played an important part in the development of new types in both wild and cultivated plants.

Breeding of Trees

The members of this audience are, I am sure, interested in tree crops, in the future of forestry crops, and in reforestation. The principles involved in breeding trees are the same as those which operate in breeding garden and farm crops. The fruit trees, such as apples, cherries, plums, and peaches, many nut trees and various ornamental trees of today have been developed by selective breeding and hybridization. But several years are required to bring a seedling tree to maturity. The breeding of several generations of any type of tree is a long-time project.

We may briefly illustrate some aspects of breeding tree crops with reference to certain citrus fruits. There are perhaps hundreds of noteworthy differences in seedlings of the sweet orange and during the past few years certain of the best of these have been propagated as clones. One interesting and valuable type is the Washington Navel Orange which is ordinarly seedless. It is believed that this particular type of fruit arose as a mutation. It is male sterile but will produce some seeds when properly pollinated. The type has been used in breeding but thus far no seedlings has been obtained which surpasses the Washington Navel.

There is a species of orange *(Citrus trifoliata)* which grows wild in Asia which is hardy here about New York City. It drops its leaves with the approach of winter; its branches are thorny; its fruits are small and bitter. This plant was hybridized with the sweet orange. The fruits of the hybrids are larger and better than those of the wild type, but the rind has so much bitter oil that the fruits are scarcely edible. Undoubtedly continued selective breeding in this group of plants would in time develop edible types that would be hardy in sections where the sweet orange cannot be grown.

I will mention only one of the many interesting hybrids in citrus fruits. You are familiar with the tangerine and the pomelo or grapefruit. A hybrid between these two is known as the Tangelo. The fruits are in most respects intermediate between the two parents. You may wish to ask what the fruits are like . . . but you must eat the fruit to appreciate the quality and character. The Tangelo is now grown to some extent in Florida and possibly in time the fruits may be had quite generally in markets here in the north. You will note that in this case, as in many perennials, a hybrid seedling may be propagated by vegetative means. It is not necessary to select parents for several generations until the race breeds true as must be done in developing varieties grown from seed.

Since you are interested in forest tree crops which provide the raw material for pulp and paper, I should perhaps say a few words about tree-breeding in relation to reforestation.

It happens that in 1924 The Oxford Paper Company in cooperation with The New York Botanical Garden began an extensive project of breeding in poplars which aimed to develop new types of poplar hybrids and to plant the best of them in forestation for the production of pulp wood. At that time there were several poplar hybrids of incidental origin and some of these were being used forestation plantings in Europe, especially in France.

Note: (Several slides were then shown illustrating poplar species used in breeding, various aspects of the breeding work, and numerous of the hybrids developed.)

In this breeding effort, 34 different kinds of poplars were hybridized in 99 different combinations. About 13,000 seedlings were grown and studied. Selections were made on the basis of rapidity of growth, resistance to disease,

hardiness, ability to root from cuttings, and the shape of tree. A rather complete report of the results of this project was prepared by E. J. Schreiner and myself and published in the Journal of Heredity for June 1933. Dr. Schreiner presented at your annual meeting in 1935 a paper on the "Possibilities of Improving Pulping Characteristics of Pulp Woods by Controlled Hybridization of Forest Trees" which also discussed the results of this breeding project.

It is certain that the best of these hybrids surpass the older hybrids primarily because they are more vigorous in growth and more resistant to rust. Ten of the hybrids that show special merit have been given horticultural names and these have been widely distributed for trial culture both in United States and in foreign countries.

Some of you may wish to ask if selective breeding in forest trees will give results that pay. The answer is yes, and without any reserve. The best of our hybrid poplars under reasonably favorable conditions will, we believe, grow to a diameter of 18 inches in 18 years. The native aspen which furnishes most of the poplar wood used for pulp usually requires 30 years to grow to a diameter of 10 inches. If it is necessary to plant poplars in reforestation it certainly will not pay to use wild types when the superior hybrids are available.

In respect to the use of our native forest growth we have passed through a period of exploitation and destruction. It was realized some years ago that conservation of forest resources is desirable. Reforestation has begun with more or less selection of planting stock. The next step is one of deliberate selective breeding in which both seed and pollen parents are controlled and evaluated. But it is quite probable that in this destruction of the virgin forests many of the strains which would be most valuable for breeding have been destroyed.

Some ten years ago James G. Eddy of Seattle, Wash., a lumberman on the Pacific Coast, established a tree-breeding institute for the hybridization and selective breeding of the most important of the forest trees both evergreens and deciduous. This work has recently been taken over by the Forest Service of the Federal Government. Also, The Tennessee Valley Authority in its reforestation projects has realized the importance of fundamental research in tree breeding and Dr. Schreiner has been obtained to undertake such work.

There is every reason to believe that the improvement of forest trees by hybridization and breeding should proceed in all efforts in reforestation.

Surface Treatment of Paper on the Fourdrinier Machine*

By Elizabeth Hunter[1]

Abstract

A survey of U. S. Patents in Class 92-40 together with a selected few from other classes.

The rapid growth in recent years in the use of four color printing has resulted in a universal demand for a suitable book paper for this work which shall have most of the printing qualities of a coated paper, but which can be sold at a lower price.

As an outgrowth of this demand, a great deal of experimenting has been done in the book paper industry in an attempt to meet these requirements. The trend has been in one general direction, and that is, to treat the paper somewhere on the paper machine, in such a way that improved surface characteristics will result, without the expensive converting step of coating on a separate coating machine.

Every new development has its roots in the past, and this case of paper machine coating or surfacing is no exception.

It has been fairly common to color or dye the paper on the paper machine, usually to produce a mottled or variegated effect, and surface or tub sizing of the paper was also well known.

In the present survey, all the U. S. Patents in Class 92-40 have been considered. This class is presumed to include all patents dealing with the incorporation of special materials into a paper web during its manufacture on a fourdrinier machine. Descriptions of a number of the earlier coloring and sizing patents have been included here to show the state of the art at the time when actual methods of paper machine coating began to be worked out.

A few patents not classified by the Patent Office in Class 92-40 are also described as they appear logically to belong in this survey.

The abstracts given below, are merely descriptive of the outstanding subject matter and some of the preferred embodiments given in the patent specifications and are not intended in any way to interpret or limit the disclosures and claims of the patents. Reference to the patents themselves is recommended. These can be obained from the Commissioner of Patents in Washington. Only United States patents have been considered, and these patents are listed in order of their date of issue. As a matter of convenience, however, all the patents surveyed have been divided into three general groups: (1) Coloring (2) Sizing, and (3) Surfacing or Coating and are thus listed at the end of this paper.

Although no survey of the foreign art has been made, and such a study might reveal numerous additional prior art methods, at least a mention should be made of the old German patent to Schulte, D.R.P.107,855 of 1897 and the recently issued Canadian patents to A. E. H. Fair for top side surfacing. Accordingly, brief abstracts of these are also appended.

177,896—William E. Symes (Assigned to Crocker Manufacturing Company).
Improvement in Processes for Producing Safety-Papers.
Filed: March 28, 1876
Issued: May 23, 1876

This patent describes a method of surface coloring paper for check or safety paper, by applying the color to the dandy roll. This is accomplished by means of a wick dipping in a vat of "soluble coloring material" and contacting

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 17 to 20, 1936.

[1] Librarian, The Mead Corp., Chillicothe, Ohio.

a felt covered roll which in turn contacts the dandy roll. Instead of using the dandy roll, a roller placed in front of the dandy may be used.

There is 1 Claim—Process.

293,228—Winthrop M. Crane (Assigned to Albert G. Goodall)
Manufacture of Ornamental Paper
Filed: July 5, 1883
Issued: February 12, 1884
2 Claims, 1 Method and 1 Product

293,229—Winthrop M. Crane
Machinery for Manufacturing Ornamental Paper
Filed: July 5, 1883
Issued: February 12, 1884

These patents describe a method and apparatus respectively of printing designs or colors upon a web of paper by means of printing rolls dipping in a trough of color and positioned at a point between the press rolls and the first drying cylinder. Either one or both sides of the paper may be thus imprinted. If two sides are to be colored, the web is led over the first dryer after the initial coat is applied, then back to a second color applying roller and thence to the second dryer and on through the machine. The process is said to be especially applicable for use in paper for bank notes, checks, etc.

4 Claims.—All Apparatus

330,215—Isaac Ellis & Melvin Ellis
Process of Coloring, Embellishing, and Discharging Color in the Manufacture of Paper
Filed: July 31, 1885
Issued: November 10, 1885

This patent describes a method for printing or coloring paper with various designs while damp and employs a roller with the desired design engraved on its periphery, and running in a tank of color or any suitable chemical and contacting the paper at any desired position between the "coucher" and the calender rolls of the paper machine but preferably between the presses and driers. In the illustration the roll is shown contacting the under side of the web after the presses and before the driers.

There are 3 Claims.—1 Method,—2 Apparatus.

368,803—Gonzalo G. Anciro
Coloring Attachment for Paper Machines
Filed: July 13, 1886
Issued: August 23, 1887

This patent describes an apparatus for coloring paper on one side, which includes a set of pressure rollers, the bottom roller dipping in a trough of color. According to the drawing, the press is located above the next to the last drier, which allows the treated paper to be completely dried on the last drier before winding.

There are 4 Claims, all for the Apparatus, but they are fairly comprehensive.

486,629—William N. Cornell
Means for Coloring Paper
Filed: October 29, 1890
Issued: November 22, 1892

This patent describes an apparatus for applying color to a sheet of paper at the felt jacketed couch roll. For this purpose a reservoir of color is positioned above the roll and the color fed to an absorbent surface such as a sponge or other similar material bearing lightly on the surface of the upper couch roll, from which it is transferred to the moist paper. Instead of the stationary applying surface a roll covered with sponge or other soft material may be used acting against the couch roll.

There is 1 Claim.—Apparatus.

520,402—Frank P. Buffington and John T. Sutphen
Apparatus for Coating Paper
Filed: May 1, 1893
Issued: May 22, 1894

This patent describes apparatus for coating paper with "liquid glaze or other surfacing material" on one or both sides in the drier section "preferably before the paper becomes thoroughly dry." This is accomplished by rotating a brush in a color pan adjacent the drier and thus transferring the coating to the paper. The coating is then spread and distributed by another brush slightly beyond the applying brush on the same drier. "Instead of circular bristle brushes as shown, it is obvious that rollers of any suitable construction could be used to apply and distribute the glaze." Also doctors may be used "in connection with the carrier brush to remove superfluous glaze from said brush—". Several driers are shown after the surfacing application.

There are 4 Claims—all for the Apparatus.

726,358—Charles Schumacher
Paper Coating Machine
Filed: March 20, 1901
Issued: April 28, 1903

This patent has for its main object "to provide ordinary paper machines with means whereby the paper may be surfaced or coated with the ordinary glue and clay coating material used for coating paper, thus avoiding the expense of two operations—". The apparatus shown includes coating the top side at a two roll press using a fountain roll dipping in a trough of color and contacting the top press roll. Brushes are used to spread the coat, and it is dried on a large drum drier, and the second coat applied by a three roll press, the bottom roll dipping in a trough of color and transferring the color to the middle press roll, which then applies it to the paper passing through the top nip. After brushing, the paper is again dried on a drum drier, reversed, and allowed a space of air drying "to set the coating material sufficiently to run on the regular paper machine for final drying." Although this point is not precisely stated, the operations appear to take place in the drier section as rolls on either side of the coating unit appear to be drier rolls, and the paper is treated after "having passed through that portion of the paper machine, at the left of the drawing and having thus been sufficiently dried—". Then after the operation, the allusion to subsequent drying quoted above.

There are 2 Claims—Apparatus.

816,402—Clemens Tittle
Paper Making Machine
Filed: June 20, 1904
Issued: March 27, 1906

This patent describes an apparatus for coating one side (top) of the paper on the paper machine including a vat for coating material positioned above the wire, and means for feeding it into a trough provided with a sluice to flow the material onto a felt apron, thence onto a squeeze roll and thence to the paper which travels beneath the squeeze roll (dandy roll). Means are provided for regulating the flow of color.

There is 1 Claim—Apparatus.

832,927—William Sillman
Machine for Making Millboard
Filed: April 11, 1906
Issued: October 9, 1906

This patent describes a machine for making millboard using fibrous material and cement, in which loss of cement through the wire is eliminated. This is accomplished by first flowing the fibrous material onto the wire, and imme-

diately thereafter flowing on a cement mixture by means of a roll which distributes it and compacts the sheet.

16 Claims—All Apparatus.

1,191,912—Willis H. Sanburn (Assigned to Strathmore Paper Company
Manufacture of Paper
Filed: May 5, 1915
Issued: July 18, 1916

This patent describes a method of producing irregular coloring effects on a moist web of paper which consists in distorting the surface of the paper at the dandy roll to produce hills and depressions, and then coloring by using a spatter brush dipping in a trough of color and spraying the coloring material onto the felt jacketed couch roll which in turn presses it into the paper causing the color to spread irregularly on the surface of the paper.

4 Claims—All Apparatus.

1,195,888—Henry M. Wheelwright
Method of and Apparatus for Sizing Paper
Filed: July 22, 1915
Issued: August 22, 1916

This patent described a method and apparatus for applying a coating of sizing material to one or both sides of the wet paper at the last (third) wet press. The arrangement consists of a pair of press rolls, the lower of which dips into a trough of size, and the upper of which is equipped with a starch bath beside it with a roll dipping into it and engaging the top press roll. At this point it is said that "about fifty per cent of the moisture has been squeezed out of the stock—". The size used is said to be an important factor in the success of this method, and for this purpose Feculose (starch acetate) or other so-called soluble or "modified" starches are most suitable. However, "it will be understood, of course, that colors, loading materials, etc., can be added to the starch for the usual purposes—".

There are 7 Claims, 5 for the Method and 2 for the Apparatus.

1,281,951—William D. Harper
Water-Marked or Safety Paper
Filed: March 13, 1915
Issued: October 15, 1918

This patent describes a method of printing designs on paper for example check paper, and consists in applying to the damp sheet at a point "between the couch rolls and the calenders and preferably ahead of the first drier," a coloring material adapted to penetrate or be drawn into the web. This is accomplished without disarranging the fibres, and by means of a roller dipping in a pan of color, and contacting a transfer roller which has the desired design thereon, and from which the design is transferred to the paper.

There is 1 Claim for the Paper Product.

1,329,130—Ernst Mahler (Assigned to Kimberly Clark Company)
Apparatus for Making Ornamental Paper
Filed: September 7, 1917
Issued: January 27, 1920

This patent describes a method of coloring paper to produce light and shadow markings of different colors by directing a series of sprays of color on the upper surface of a rough paper while still on the machine to embed the color in the paper.

There are 3 Claims—All Apparatus.

Other Kimberly Clark Patents on Coloring Paper (Wall Paper). 1,595,207 1,709,969 1,767,252.

1,407,247—Ernest B. Brewster
Method and Means for Coloring Paper
Filed: March 13, 1920
Issued: February 21, 1922

This patent describes a method of coloring paper while still on the forming machine by spraying color under pressure from a series of rotable nozzles positioned above the web.

There are 4 Claims—Apparatus.

1,538,582—Fritjof Olander & Viktor Moisio
Manufacture of Paper
Filed: August 25, 1923
Issued: May 19, 1925

This patent describes a "method of applying filling stuff or media during the process of making paper so that loss of such filling stuff is reduced to the smallest possible degree." All the filling stuff is added in liquid form to the pulp web on the wire cloth of the paper machine. This is accomplished by means of a reservoir of color extending across the paper machine, and provided with an angularly inclined edge over which the filling stuff flows toward a gate which can be vertically adjusted to regulate the amount of material used. A tongue is arranged beneath the gate which directs the "filling solution" onto the pulp web.

There is 1 Claim—Apparatus.

1,623,280—Daniel A. Smith and Charles P. Stirling (Assigned to District of Columbia Paper Manufacturing Company)
Decorated Paper and Method of Making Same
Filed: July 14, 1925
Issued: April 5, 1927

This patent describes "the production of printed decorated paper, while the paper is still in the making and passing through the paper making machine." This is accomplished by employing a printing attachment, positioned, as shown in the drawing, at the last press rolls, and comprises adding ink or water color to an etched design roll, thence to a resilient transfer roll and thence to the wet web.

There are 5 Claims—3 Process, 2 Product.

1,623,281—Daniel A. Smith and Charles P. Stirling (Assigned to District of Columbia Paper Manufacturing Company)
Machine for Making Decorated Paper
Filed: July 14, 1925
Issued: April 5, 1927

This patent is identical in disclosure with the previous patent U. S. 1,623,280 and carries 3 Apparatus Claims.

1,707,333—John Traquair (Assigned to Mead Corporation)
Method of and Apparatus for Manufacturing Paper
Filed: June 14, 1926
Issued: April 2, 1929

This patent seeks to eliminate two-sidedness by combining two paper webs with the wire side innermost. The sheets thus combined are formed in two stages on a specially designed cylinder machine having a travelling wire; first flowing on a relatively coarse stock to form a mat, and thereafter flowing on finer fibrous material and filler. Two machines are arranged with their delivery ends adjacent each other so that the webs coming from the two machines can be couched together at this point, and dried as one composite web.

There are 14 Claims—9 Method and 5 Apparatus.

1,786,681—John Traquair (Assigned to Mead Corporation.)
Method and Apparatus for Manufacturing Paper.
Filed: July 31, 1926
Issued: December 30, 1930

According to this patent a suspension of surfacing material e.g. filler, size, etc., is applied to the wet paper, for example, at the second press by mounting a trough of color adjacent the lower press roll in such a manner "that the solution which flows onto the surface of the roll is carried upwardly into contact with the wire side of the web of paper, the thickness of the surface layer being controlled by adjusting the pressure between the two press rolls." The surface layer is thus spread on the wire side and is pressed into the wet sheet and caused to bond and become incorporated with the body of the sheet.

Surfacing material may also be applied to both sides of the sheet of paper if desired (Fig. 4), and the two sides may be given the same or varying surface characteristics.

There are 18 Claims—11 Method, 7 Apparatus.

1,823,845—Paul Schumacher
Apparatus for Dyeing Paper and Cardboard During the Manufacture on Paper Making Machines.
Filed: June 23, 1930 (Germany January 20, 1927)
Issued: September 15, 1931

This patent describes an apparatus for applying colors or designs to paper using the so-called Egoutteur cylinder provided with metal grooves, pieces of felt or other material adapted to absorb liquid which transfers the color to the still wet paper. In the drawing this roll is shown somewhat over 2/3 the way down the wire. The color flows from the inside of the cylinder out through the grooves or felts thereon.

There are 5 Claims—Apparatus.

1,875,208—William E. Bair (Assigned to Mead Corporation)
Paper Manufacture.
Filed: March 9, 1931
Issued: August 30, 1932

This patent aims primarily at eliminating two-sidedness particularly in high filler content sheets by applying surfacing material to the wire side of the paper while it is still wet, but after it has arrived at a sufficiently definite stage of formation. This stage is ordinarily reached on a Fourdrinier machine after the web has passed over the first set of suction boxes. Bair, therefore, utilizes, for example, the guide roll dipping into a trough of filler-fibre mixture and rotating at the same speed as the paper. This roll carries the fibre-filler mixture up to the wire, forcing it through the wire to form a pool thereon. The paper web being in an absorptive state, picks up the mixture, the solids of which partly penetrate into the body of the paper, and partly remain on the surface to produce a smooth, white aspect, very similar to the top side of the paper.

There are 15 Claims—12 Method and 3 Product.

1,889,851—Frank G. Crane
Method of Making and Treating Paper.
Filed: January 10, 1931
Issued: December 6, 1932

This patent describes a method of treating light weight papers "to render them entirely opaque," and "of producing paper having the advantages of coated paper produced by the usual methods which eliminates the coating apparatus, drying rooms, and materials commonly employed in the industry."

This is accomplished by placing in the drier section an apparatus comprising two size tubs for total immersion of the paper therein and a set of "squeeze or gaging rollers" one of which is provided with "screw adjusting means" through which the paper passes after immersion. After partially drying, the web is passed through the first solution "comprising silicate of soda, starch or other suitable binder, glycerine and soap." After passing through the squeeze rollers, the paper is then passed "through a solution which acts to convert at least a substantial portion of the silicate of soda." This may be "oxalic acid, formaldehyde, or liquid chlorine, and aluminum sulfate."

There are 14 Claims—all Method.

1,903,236—Bjarne Johnsen (Assigned to Hammermill Paper Company.)
Paper Manufacture
Filed: September 18, 1930
Issued: March 28, 1933

This patent describes a method of sizing paper by flowing a solution of starch or other sizing material thereon while the sheet is on the Fourdrinier Wire. (No mention is made of filler or other solid material). For this purpose a box is provided, placed above the wire and having an overflow passage and lip extending across the machine and arranged to deliver a continuous flow of starch over the lip to the stock on the wire.

There are 6 Claims—all Method.

1,910,670—Gebhard Blaser (Assigned to I. G. Farbenindustrie)
Treatment of Webs and Sheets with Fluids.
Filed: March 13, 1929 (Germany March 19, 1927)
Issued: May 23, 1933

This patent describes a method of treating paper, textiles or metal foils with any desired liquid or gas, and is primarily directed to dyeing paper either in solid colors or stripes or designs. For this purpose boxes are positioned beneath the paper, "at any convenient stage of dewatering, i. e., on the sieve, pressing or drying section of the machine, or outside the said machine." These boxes are provided with orifices in their upper surfaces or covers through which the treating material may be fed to the paper—for example "solutions, emulsions or suspensions of dyestuffs, waxes, resins, oils, and the like or with gases, such as for instance chlorine, or substances may be applied which produce colour effects with other substances incorporated with the paper pulp and the like."

There are 6 Claims—all Method.

1,914,526—Harold R. Rafton (Assigned to Raffold Process Corporation.)
Paper Manufacture.
Filed: May 1, 1931
Issued: June 20, 1933

This patent deals with a method of making paper containing alkaline filler, and particularly with a means of preventing or minimizing the reaction of the alkaline filler with acidic constituents of the paper mix. A paper mix containing alum or other acidic constituent is passed over any suitable forming device and "on the web forming device by any suitable known means alkaline filler is introduced into the web, or alkaline filler may be applied to one or both sides of the web by suitable known means at the presses or elsewhere on the machine before the paper is completely dried."

P. 3 lines 39 et seq. "If a Fourdrinier Machine be employed in the practice of my invention, the introduction of the alkaline filler may be effected at any place on the wire,—suitably by flowing on a continuous broad stream

from a known device placed across and above the web,—but it is most suitably effected in the vicinity of the first suction box." Or the application may take place on the press rolls or smooth rolls.

P. 4 lines 12-16, "The white water of such alkaline filler mix may be used as part or the entire source of alkaline filler to be introduced in the forming or already formed web."

P. 4 lines 19-22, "—, combining the webs either wire to wire side, top side, i. e., 'felt' side to felt side, or felt side to wire side as desired."

P. 4 lines 37-41, "— if desired, fibrous material may be admixed with the alkaline filler in its incorporation into or application to the web."

If the paper is to be sized, it may be accomplished in the usual manner by adding size and size precipitant to the furnish, or either or both of these may be added to the web on the forming machine along with the filler.

There are 36 Claims—32 Method, 4 Product.

1,918,095—Rudolph Germonsan & Frederick Kranhold (Assigned to Paper Patents Company.)
Process and Apparatus for Making Paper.
Filed: December 19, 1932
Issued: July 11, 1933

This patent describes a method and apparatus "for making paper having its outer surface treated with a filler or 'color,' and to provide an arrangement which will force the 'color' into the surface stratum of the web, and will obviate the necessity of using smoothing or distributing brushes, bars or rollers and the like." The filling material is applied as a part of a continuous papermaking operation, within the drying roll zone by passing the partially dried paper through a pair of pressure rolls, the lower roll of which dips into a trough of color, or (Fig. 2) using a felt dipping in the trough of color to carry the color into the pressure nip. The use of considerable pressure is stressed, 200 pounds per lineal inch of face being given as an example. Both sides may be thus treated by passing the treated paper around a large drum drier (coated side out), after each application. An example of the amount of mineral added is given as 3½ lbs. on the wire side, and 2 lbs. on the felt side.

There are 13 Claims—8 Method, 5 Apparatus.

1,921,368—Peter J. Massey
Process of Coating Paper
Filed: May 29, 1930
Issued: August 8, 1933

This patent describes a method of coating one or both sides of a paper web in the drier section of the paper machine. Any suitable coating color can be used. The coating is actually applied to the paper at the nip of two press rolls, but the smoothing and manipulation of the color is accomplished prior to its application to the web. For this purpose a roll is journaled to rotate adjacent a fountain of color and thus have a film of color deposited on its surface, the thickness of the film being regulated by a doctor blade. Close to the first roll is another roll pivoted so as to make and break contact with the first roll. The pivoted roll transfers the film of color from the fountain roll to a series of rollers which work and smooth the film, and finally deposit a smooth, uniform film onto the actual coating press roll. A similar arrangement is used for each press roll so that one or both sides of the web can be coated. The press roll simultaneously applies and compacts the coating. The coat weight may be regulated by "manipulating the doctor blade and controlling the pressure" of the press rolls. "Coatings may be applied to the web ranging in dry weight from approximately .05 to 5 pounds per one hundred square inches of paper."—It is claimed "possible to properly coat a web of paper moving at a speed of twelve hundred feet per minute or higher, as uniformly and as well as a web moving appreciably slower."

There are 11 Claims—Process.

1,921,369—Peter J. Massey
Method of Coating Paper
Filed: November 4, 1931
Issued: August 8, 1933

This patent describes a continuous "process of forming, felting, coating and drying paper," and "contemplates coating the paper while the web possesses a relatively high percentage of moisture." This is accomplished by means of the coating device described in greater detail in the previous patent (1,921,368) of a fountain roll which transfers a film of color to a pivoted roll which alternately contacts the fountain roll and distributing rolls, the latter finally transferring its smooth uniform film to a pair of coating press rolls. The Present patent describes and illustrates this device as used on a

(1) Fourdrinier machine:
  (a) Between first and second presses
  (b) Between second and third presses
  (c) Between third press and drier
(2) On a cylinder machine
(3) On a combination machine
(4) On a Harper machine

There are 7 Process Claims

1,922,325—Harold R. Rafton (Assigned to Raffold Process Corporation.)
Manufacture of Paper
Filed: December 11, 1930
Issued: August 15, 1933

This patent deals with a method for rosin sizing carbonate filled paper, and to avoid the deteriorating effect of the alkaline filler on the size and size precipitant, it is proposed that "—the size be applied to the web coating alkaline filler instead of to the dilute suspension which is fed to the web-forming device—."

"The size and size precipitant may be applied at any convenient point of the paper machine, either where the web is still in wet condition, e. g., preferably just after the press rolls, or at a point where the water has been substantially removed from the web, e. g., preferably just after the driers, or they may optionally be applied to the paper web subsequent to the machine as a separate process." The inventor states that he has "found application by a roll or sprays very convenient methods, especially at a point subsequent to the first press roll. —"

"In certain cases, particularly where the presence of foam is not a serious detriment, the size may be introduced into the mix prior to the web forming device, in which case only the size precipitant need be applied to the web. Likewise the procedure may be reversed, applying the precipitant to the mix just prior to the web forming device, and size to the web, but this latter procedure in general requires more precipitant. However, in either of these cases the precipitation actually takes place in the web."

There are 42 Claims—40 Method and 2 Product.

1,948,874—Leon M. Yoerg (Assigned to American Writing Paper Company.)
Process for Treating Paper
Filed: July 7, 1931
Issued: February 27, 1934

This patent describes a means for surface sizing a web of paper. The size tub is positioned in the drier section, and "any suitable size material such as starch, bone or hide

cuttings, petroleum, vegetable wax or the "like" may be used. The paper is immersed and saturated with the size, and after passing through a pair of squeeze rolls is sprayed with a hardening agent such as formaldehyde to produce a hardened, waterproof but flexible paper.

There are 6 Claims—3 Method and 3 Apparatus.

1,950,351—James d'A. Clark & John E. Graves (Assigned to Mead Corporation.)
Paper Manufacture
Filed: August 7, 1931
Issued: March 6, 1934

This patent is supplemental to 1,875,208. It also aims at eliminating two-sidedness by applying additional surfacing material to the wire side of the sheet. This is accomplished by introducing a slotted pipe under the Fourdrinier wire after a first set of suction boxes and before a second set of suction boxes, and directing a stream of fibre-filler suspension through the wire onto and into the web of moist paper. To overcome the resulting slight weakening of the sheet, additional amounts of size or bonding agent are introduced into the sheet along with the fibre-filler suspension.

There are 20 Claims—14 Method and 6 Apparatus.

1,957,817—Charles G. Bright (Assigned to Paper Patents Company.)
Process and Apparatus for Making Paper.
Filed: February 27, 1933
Issued: May 8, 1934

This patent describes the application at a pressure nip of a light weight coat as previously described by Germanson, 1,918,095, followed by the application of a heavier layer, which is dried while passing over the large drum drier by means of a stream of hot air. This heavy layer is applied as shown by means of two rolls rotating against each other and dipping in a trough the color. The roll contacting the paper rotates against the paper.

There are 8 Claims—5 Process and 3 Apparatus.

1,964,312—Charles G. Bright (Assigned to Paper Patents Company.)
Process and Apparatus for Making Paper
Filed: January 18, 1934
Issued: June 26, 1934

This patent describes passing the web through a pressure nip and then applying an excess of color. The excess is then removed by means of a roll, wet with color travelling in a direction opposite that of the paper at a speed in excess of that of the web. If desired, starch or size may be added to the web before the excess of color is added.

There are 9 Claims—6 Process and 3 Apparatus.

1,964,567—William P. Feeney (Assigned to Mosinee Paper Mills.)
Apparatus and Method of Coloring Paper
Filed: December 30, 1931
Issued: June 26, 1934

This patent describes a method of decorating a paper web for example with colored lines running lengthwise. This is accomplished by placing a series of nozzles across the machine above the suction couch roll and directing the colored material on to the wet web passing thereover either in a spray or in solid streams.

There are 10 Claims—8 Apparatus and 2 Process.

1,981,803—Olof H. Hedstrom
Method of and Apparatus for Producing Multishade Mottled Paper
Filed: March 7, 1934
Issued: November 20, 1934

As the title indicates, this patent is directed primarily to producing a colored mottled paper by the use of dyes applied to the top side of the wet paper web while it is on the Fourdrinier Wire. However, the specifications disclose the use of (p. 1 lines 95-98) "any paper filler of high opacity such as zinc oxide, titanium oxide, their sulphides or asbestine, suspended in water, either alone or with dye—."

The apparatus used for accomplishing this effect comprises two round bottomed troughs filled with liquid and positioned above the Fourdrinier wire. In each trough dips a rotary brush having staggered or irregularly arranged prongs. These brushes rotate in opposite directions, toward each other, so that "these liquids, as the same are thrown from the troughs, will contact or hit each other, and thus intermingle in suspension or in the air—" to produce the desired multishade or mottled effect.

There are 7 Claims—4 Apparatus and 3 Process.

See also 1,999,049.

1,987,901—Ralph A. Hayward (Assigned to Kalamazoo Vegetable Parchment Co.)
Paper and Method of Making
Filed: September 6, 1932
Issued: January 15, 1935

This patent describes a method of making a filled paper by applying filler material or pigment such as fine clay or lithopone in a colloidal suspension in a binder such as gum arabic, starch or glucose, to both sides of the partially dried web at the nip of a pair of press rolls located in the drier section of the paper machine. The process is directed primarily to the manufacture of opaque waxing paper, but some of the 13 method claims are quite broad, and read on any such operation. As shown in the illustration both the press rolls are doctored. Surfacing material is sprayed onto the top side of the web just before it enters the nip, while the bottom side is surfaced by spraying the color onto the bottom press roll which transfers it to the web. The "improved paper is not designed or intended to have all the qualities of coated paper as the ordinary coated paper has a surface coating, whereas, my paper is impregnated with a material that fills the interstices thereof without dislocating or destroying the fibres."

There are 13 Claims—all Method.

1,988,179—Albert G. Natwick, Henry Ostenson and William Barber (Assigned to Crown Willamette Paper Company.)
Opaque Paper
Filed: July 21, 1933
Issued: January 15, 1935

This patent describes a method of producing opaque paper by spraying suspensions of high strength or other pigments onto the dandy roll which in turn transfers the pigment to the paper web. The process is applicable to book, envelope and label papers, but is especially adapted to the manufacture of opaque waxing papers. In the preferred enbodiment of the invention suspensions in water of any of the desired pigments "such as titanium dioxide, zinc sulfide, and blends of varying proportions of these with barium sulfates and calcium sulfates," are sprayed at an angle against the top of the dandy roll. The dandy roll is preferably equipped with a wire covering of about 50 mesh, and about 20-30 pounds pressure used to spray the mixture. Each side of the dandy is equipped with a felt curtain to prevent drops of pigment from falling in the web, and, on the descending side, to brush out the color to assure a uniform coating of the sheet.

There are 11 Claims—10 Apparatus and 1 Method.

1,999,049—Olof H. Hedstrom
Apparatus for Making Mottled Paper
Filed: October 24, 1933
Issued: April 23, 1935

This patent describes a method of producing an irregularly mottled sheet of paper. This is accomplished by spattering drops of liquid onto the web while it is on the Fourdrinier wire. This liquid may be "any paper filler of high opacity such as zinc oxide, titanium dioxide, their sulfides, or asbestine suspended in water, either alone or with dye." The apparatus used to accomplish this is shown as a round bottomed color trough in which dips a rotary brush having staggered or uneven prongs, which in turning carries out color with it and rains it onto the sheet.

There is 1 Claim—Apparatus.

See also 1,981,803.

2,024,635—Ernst Fuess—(Assigned to Anthony Wm. Deller)
Process of Producing Multi-Layer Paper, Cardboard, Pasteboard, Boxboard, and the Like, and Product Thereof.
Filed: August 26, 1932 (In Germany July 27, 1931)
Issued: December 17, 1935

This patent describes a method of applying an opaque coating to a sheet of paper "while the sheet is still moist and/or wet." This coating can be applied to one or both faces of the sheet or may be incorporated between two sheets. The material used is obtained by preparing a "slippery, paste-like mass of fibrous material, such as wood fibres, and solid particles, such as mineral fillers, coloring agents and the like by wet grinding or macerating the constituents to an excessive degree." After application to the paper (method of application not mentioned) the paper is compressed as by calendering to produce an integral sheet.

There are 10 Claims—7 Method and 3 Product.

D.R.P. 107,855—Herman Schulte
Process for Sizing Paper, Board and the Like on the Paper Machine or of Adding Antiseptic Materials or Fillers Thereto.
Filed: May 5, 1897
Issued: January 27, 1900

This patent advocates the addition of size, fillers, antiseptic or other materials to the felted web on the machine at a point where the dewatering has progressed to a substantial degree, for example where the water content is about 80 per cent, as beyond the last wet press. However, this treatment can take place at any other place on the machine between the couch roll and the last wet press or beyond this. This is accomplished by applying the suspension to a roll or felt, and then bringing this in contact with the paper between press rolls. In the drawings, 9 variations are shown in position and arrangement.

Can. Pat. 336,703—Albert E. H. Fair
Machine for Attaching to a Paper Making Machine for Better Filling of Paper
Filed: June 16, 1933
Issued: October 31, 1933

6 Claims—Apparatus.

Can. Pat. 336,704—Albert E. H. Fair
Method of Producing Filled or Opaque Papers
Filed: June 16, 1933
Issued: October 31, 1933

6 Claims—Method.

These two patents, which are identical as to specifications except that one specifies an apparatus, the other a method, describe the manufacture of filled paper, in which one of the main objects is to use high hiding power pigments such as "lithophone, titanium oxide, barium sulfate and various combinations of zinc sulfide with barium sulfate and combinations of the titanium oxide with barium sulfate," without the heavy loss of these materials which results from their prior art use in the beater. To accomplish this, Fair positions a device above the Fourdrinier wire, to spray a suspension of filler through a series of nozzles onto a lip or baffle across the width of the wire, from which the suspension flows onto the wet web, and is said to remain "substantially intact upon the upper surface of the paper." This expedient is said not only to increase the filler retention but to produce a "substantially uniform" surface which "still retains the opacity required in this type of product."

Can. Pat. 340,351—Albert E. H. Fair
Machine for the Manufacture of Paper
Filed: October 24, 1933
Issued: March 27, 1934

5 Claims—Apparatus.

The specifications of this patent go into greater detail regarding the structure of the apparatus used for preparing the filled paper described in the two previous patents. The present patent describes the use of a sheet metal shield having vertical corrugations for positioning above the Fourdrinier wire to receive the sprayed filler material. The corrugations are said to assist in the flow of the spray and provide even distribution of the filler suspension. The shield is provided with a resilient lip preferably of rubber to prevent formation of drops or globules. The position of the device with reference to the length of the Fourdrinier part "will vary according to the weight of paper required"—but, "in general use—its location about five feet from the lip 4 of flow box 1, produces paper of good quality."

Coloring	*Sizing*
177,896	1,195,888
293,228	1,889,851
293,229	1,903,236
330,215	1,922,325
368,803	1,948,874
486,629	
1,191,912	
1,281,951	
1,329,130	
1,407,247	
1,823,845	
1,910,670	
1,964,567	
Surfacing	
520,402	1,921,368
726,358	1,921,369
816,402	1,950,351
832,927	1,957,817
1,195,888	1,964,312
1,538,582	1,981,803
1,623,280	1,987,901
1,623,281	1,988,179
1,707,333	1,999,049
1,786,681	2,024,635
1,875,208	Can. Pat. 336,703
1,914,526	Can. Pat. 336,704
1,918,095	Can. Pat. 340,351
	D.R.P. 107,855

Technical Men to Visit Murray Bay and the Saguenay River District

By J. N. Stephenson[1]

Murray Bay "has everything." Here, the Murray River (named for General Murray) joins the St. Lawrence, and although Champlain himself in 1608 gave it the name La Malbaie (the official name of River, bay, and town is now La Malbaie), the beauty and invigorating air of the place made it the favorite summer rendezvous for Richelieu's gallants and their ladies. The Cardinal, Armand Jean du Plessis, Duc de Richelieu, ruled the destinies of France from 1624 to 1642. He organized the Company of One Hundred Associates, which had a perpetual monopoly of the fur trade in New France. It had an important part in the development of the country we see as we come on deck to greet the third day of our wonderful trip. There is the famous Manoir Richelieu looking like a baronial estate nestled among the oldest hills in the world—the Laurentian Mountains.

Breakfast is to be finished early, for we want to make the most of our four hours ashore at Murray Bay. Comfortable busses are to take us through the picturesque village. The Bouliane house is over two centuries old, and the Nairne and Cobbot manoirs were built soon after the Conquest. It was at the little church here the writer once put his contribution in the collection plate passed by Warden, the Late President Taft, and after the service recalled with him the visit of Mr. Taft (then Chief Justice) to the University of Maine.

Arriving at the terrace of the Manoir, we hear exclamation of delight at the view looking across the St. Lawrence. Although twelve miles away, the hills on the other shore look to be only a couple of miles, so clear is the air. But there are many things to see and do for those who have not left for the golf course.

The Manoir Richelieu collection of Canadiana comprising nearly 1500 pictures, is one of the finest in existence. Catalogs are available to guests and an hour or two will give you but a hasty appreciation of the historic charm of this collection, and leave you with a vivid picture of those strenuous days of siege, cannonade and ambush which marked this country's earlier years.

Among the most notable pictures are the views by Richard Short of Old Quebec and the city of Halifax. Richard Short was purser of His Majesty's ship the *Prince of Orange*, and his Quebec drawings were taken on the spot at the command of Vice-Admiral Saunders about the year 1761. Another set by Captain Hervey Smith, Aide-de-Camp to General Wolfe, bears the title "Six elegant views of the most remarkable places in the River and Gulf of St. Lawrence." These were made about the same year, some from the decks of the man-o'-war, *Vanguard*. Lieut.-Colonel James Pattison Cockburn was another who found time to substitute the brush for the sword, and the large group of his water-color drawings gives a vivid interpretation of some of Canada's most famous scenes.

The homespuns produced by the native women of the Murray Bay are among the finest examples of this vanishing art to be found anywhere today. There are colorful blankets, curtains, rugs, and coverlets which are justly popular. Many fine pieces of this work are on display.

The big swimming pool is supplied with salt water from the St. Lawrence, so clear you can see a penny on the bottom, but warmed a bit to take off the chill. That invigorating plunge is just the thing to put an edge (if any is needed) to your appetite for lunch when you get back to the ship.

International Golf Match

The golfer who has not played the Manoir course (like the man who had the D.T.'s) "ain't seen nothin' yet." It is not only just about perfection as a course, but a golfer never played in more beautiful surroundings. You seem to be on top of the world, and with the St. Lawrence way down there below, it is sure to be a game to be long remembered.

It is here that one of the feature events of the convention takes place. The International Golf Match is sure to be a very enjoyable affair. There are some very good players among the Technical men on both sides of the line. But there are many others who get just as much fun out of it. A fine collection of prizes has been provided and there will be plenty of trophies for both gross and net scores. The Canadian Technical Section will ring in some members of the Woodlands Section who have private battles on for the cup presented by Gordon Fleck, general manager of J. R. Booth Limited, for the best team score between these two sections of the Canadian Pulp and Paper Association. It was won last year by the Technical Section with only a fraction of a point margin. The usual sweepstake, figured on net scores, will be paid off in chits that will be good on such souvenirs as the winner may choose.

Tadoussac and the Saguenay

Spanish Basque fishermen established the first European settlement in Canada at Tadoussac toward the end of the sixteenth century. The mission church, oldest in America,

[1] Editor, Pulp and Paper Magazine of Canada.

PORT ALFRED DIVISION, CONSOLIDATED PAPER CORP., A FOUR-MACHINE NEWSPRINT MILL

is symbolic of those early days of fishermen, trappers, and traders, whose hauls of wealth from water and woods both laid the foundation of fortunes and aroused jealousies and strife that finally ended in a war that resulted in the transfer of New France to England. But while we are keenly interested in the remaining evidence of the hard primitive conditions that have not even yet passed for many families along the North Shore, we can step right out of medieval memories into the fine modern Tadoussac Inn, one of the most popular summer hostelries in Canada. For a restful, re-invigorating holiday, this is the place.

But we must push along so as to enjoy the scenic climax of the trip. The sail up the Saguenay in the late afternoon is an unforgettable experience. The Saguenay is a remarkable river. In places it is six hundred feet deep; its width varies from three-quarters to two miles. For 55 miles, it is navigable for ocean vessels to Baggottville (Port Alfred) on Ha! Ha! Bay, our destination. At the mouth of this great stream stand those tremendous portals, capes Trinity and Eternity, 1600 and 1800 feet in height. On both sides of the river rise rocky cliffs often 1,000 feet high, broken occasionally by narrow wooded valleys. We sail on into the sunset and the moon is rising as the *Quebec* steams into Ha! Ha! Bay, in the heart of the Kingdom of the Saguenay, where a program of unusual interest awaits us in the morning.

The Port Alfred Paper Mill

From the deck of our ship we can see nearby the lights of the Port Alfred Division of Consolidated Paper Corporation, which we have been invited to visit.

The fore-runner of this plant was a sulphite mill built in 1916, known as the Bay Sulphite Company. The Port Alfred Pulp and Paper Corporation was incorporated in 1924 and built a modern newsprint mill. In 1929 this concern was acquired by Canada Power and Paper Corporation and in 1931 became a Division of Consolidated Paper Corporation.

The plant is equipped for the manufacture of newsprint, sulphite and wrapper, there being 6 machines, 4 of 234 inches and 2 of 150 inches. The present annual capacity production is 148,500 tons newsprint and 10,000 tons wrapper. Newsprint shipments are made by water transport for about six months of the year.

All wood cut on the limits of the Corporation is driven on River Ha! Ha! and River a Mars to a large booming area of some 500 acres in Ha! Ha! Bay, capable of holding approximately 100,000 cords of wood. These booms are usable between May 1 and October 31 and are on tide water, the tidal range being approximately 18 feet at spring tides.

Wood is taken up jack ladders and through drum barkers before going to the mill or to storage. The storage conveyor is of the suspension bridge type, 1246 feet long with a cable 2675 feet in length. Approximately 225,000 cords of wood can be stored without the use of side conveyors. Spans between towers are 425 feet and height to center of cable is 125 feet. Wood received by boats is unloaded at the Corporation's private wharf which is 300 feet long and on which are installed two large electric unloading cranes, each capable of handling 100 cords per hour.

The grinder room contains 22 magazine grinders, 12 which are of the Warren and 10 of the Continuous type. Each pair of grinders is driven by a 2600 hp. motor at 212 R.P.M. The production per stone is approximately 18 tons per day.

In the sulphite mill there are 5 large digesters of 20 tons capacity each, size 18′ x 54′ (inside diameter).

There is a modern boiler plant containing 6—800 hp. B & W coal-fired boilers and 3—500 hp. refuse burning boilers. In addition there is a 35,000 K. W. Kaelin steam generator.

Electric power is supplied by the Saguenay Power Company from the Isle Maligne and Chute a Caron generating stations. The Corporation owns two small power developments on Ha! Ha! River which develop approximately 2000 hp.

Looking After the Ladies

On the assumption that the ladies attending the convention would not care to rise early and trudge all day around the aluminum works, power plant, and paper mill to which the men will go by train, the committee on arrangements has prepared a special program for Thursday.

The convenience of getting from the ship to the paper mill at Port Alfred may tempt the ladies who did not visit the Anglo Canadian Pulp and Paper Mills at Quebec. The Port Alfred mill is an interesting one to go through. The wood is hauled up on a conveyor to saws that cut logs into four-foot blocks. These are cleaned in the barking drums and the bark has the water squeezed out, so it will be dry enough to burn. Most of the steam required, however, is generated by passing electric current through water. Most of the power for this mill also comes from the Saguenay Power Company at Isle Maligne, which the men folks will visit.

For those who get up with so much ambition that they must go somewhere and do something, this mill visit will probably be sufficient for the morning. Those who stay on board will find reading matter, deck games, etc.

The afternoon program offers a choice of two events—a motor trip or bridge. A number of handsome prizes have been donated for this event. Those who take the motor trip will see an interesting bit of Canada. The road to Chicoutimi takes one through fine rolling farmland where pioneer settlers carved their homesteads out of the forest—a forest of pine of such wonderful quality that it was the favorite mast timber for His Majesty's navy.

The Birth of Huge Industry

It was to this Saguenay Country that William Price, the Elder, came in search of masts in 1810. Not only did he fulfill his important task but he was so impressed with this country that he came back and settled here, founding what has become the world-renowned firm of Price Bros. & Co. Ltd. The firm originally produced lumber, but later entered the pulp and paper business, as a later chapter will show. The industry started by William Price was so important to the district and he was himself so respected and beloved for his personal qualities that he was called "le père du Saguenay" and a memorial shaft was erected on an eminence in Chicoutimi. Lieut.-Col. John H. Price, a great-grandson of Sir William, is now in charge of the operations of Price Bros. & Co.

Then back to the ship for dinner and a twilight sail down the Saguenay, so as to have the unusual experience of passing up the St. Lawrence from Quebec to Montreal in daylight.

W. P. Beene Joins Carpenter

W. P. Beene, for over twenty years with the Tayloe Paper Company of Memphis and the Tayloe Paper Company of Oklahoma, has resigned and become associated with the Carpenter Paper Company.

The employees and management of the Tayloe Paper Company of Oklahoma at Tulsa presented Mr. Beene with a wrist watch as an expression of the high esteem in which he was held.

High Quality Papers to Feature Technical Summer Meeting

In accordance with the excellent reputation that has been built up over a period of years by the Canadian Technical Section and the Technical Association of the Pulp and Paper Industry, a program of papers has been assembled to be presented at the Joint Summer Meeting of these two great technical organizations. No pulp or paper company can afford not to be represented. The entire program will prove of value to mill managers, chemists, engineers and superintendents, the classes of men who are members of these organizations.

The program for Monday, August 3, at 9:30 A. M. at the Mount Royal Hotel, Montreal, P. Q., is as follows:

Symposium on High Speed Paper Machine Operation, by H. J. Rowley, Anglo-Canadian Pulp & Paper Company, presiding.

The Development of the News Print Industry, by R. S. Kellogg.

High Speed Paper Machine Operation, by W. T. Bennett.

The Type of Groundwood Needed for High Speed Paper Machine Operation, by L. E. Kendall.

Sulphite Pulp Requirements for High Speed Machines, by R. T. Steedman.

2:30 P. M. The Vacuum Drying of News Print on High Speed Machines.

At 7:00 P. M. on Monday the conventioners will board the S. S. Quebec and sail to Quebec where first-hand observation can be made of the points brought out in the symposium on high speed machine operation. Visits will be made to the Anglo-Canadian Pulp and Paper Company's mill when many new developments may be viewed. For those interested, the board mill of the Donnaconna Paper Company can also be visited.

The party will proceed on Tuesday evening by boat to Baggottville, P. Q., with a brief stop at Murray Bay. From Baggottville, a train will take the party to the famous Riverbend Mill of Price Bros. Company when vacuum drying of newsprint at high speed can be seen. Visits will also be made to the Port Alfred Pulp and Paper Company mill to the Arvida plant of the Aluminum Company and to the great power development at Isle Maligne of the Saguenay Power Company.

On the return trip at 9:30 A. M. an excellent program of papers has been arranged as follows:

Grellet N. Collins of Stevens & Thompson Paper Company, presiding.

Nature of Certain Lignin Derivatives, by F. E. Brauns, Institute of Paper Chemistry, Appleton, Wis.

The System of Rosin Size, Alum and Fiber as Related to the Problems in Paper Making, by S. J. Robinson (by title).

The Relation Between Growth Conditions, Wood Structure and Pulping Qualities, by C. E. Curran, Forest Products Laboratory, Madison, Wis.

What Constitutes Validity of Patents, by C. W. Rivise.

Recent Developments in the Field of Coated Paper by O. W. Callighan, Edgar Bros. Company, Metuchen, N. J.

Recent Determinations Relative to Physical Characteristics of Paper and Ink to Accomplish Particular Results, by C. F. Clarkson, International Printing Ink Corp., New York.

Study of the Effect of Hemicelluloses on the Beating and Strength of Pulps, by H. F. Obermanns Jr., Hammermill Paper Co. (tentative).

The boat will dock in Montreal at 4:00 P. M. Friday, August 7 and provision has been made to inspect the laboratories and paper mill of the Research Institute at Montreal on Friday and Saturday.

Nearly 300 have made reservations for the meeting and cruise. Anyone interested may attend. Reservations should be made direct with Leo S. Tobin, 1409 Peel street, Montreal, P. Q. The cost per person will be $54, including boat transportation, meals, registration fee, stateroom, luncheon in Montreal, and mill visit transportation. It will be an ideal way to combine business and pleasure and will well repay all who attend.

Delaware Valley Section Dine and Dance

About 75 members and guests of the Delaware Valley Section of TAPPI spent an enjoyable afternoon and evening at the Bala Golf Club, Bala, Pa., Friday, June 19. The afternoon was devoted to golf followed by a splendid dinner and dancing until 1 A.M. This enjoyable affair was arranged by a committee consisting of R. M. Bates, chairman and Ronald Atwater and Valdemar Jacobsen. Jay Edge was the genial master of ceremonies and presented to the past chairmen of the section and to Dr. Schwalbe, present chairman, certificates of merit, aptly decorated in a manner typifying the "Merits" of each recipient.

The success of the June meetings of this section is becoming a tradition and this year, as in the past, formed a fitting climax to a very successful year.

Among those present were Grellet N. Collins president of the Technical Association of the Pulp and Paper Industry and Mrs. Collins of New York, N. Y.

Among those present were:—Mr. and Mrs. J. R. Atwater, Mr. and Mrs. A. R. Boyd, Mr. and Mrs. Valdemar Jacobsen, Mr. Leslie Justice, Mr. and Mrs. W. R. Maull, Mr. and Mrs. W. F. Mitchell, Mr. and Mrs. W. P. Quinn, Mr. and Mrs. H. C. Schwalbe, Mr. and Mrs. R. E. Stearnes, Mr. and Mrs. J. N. Tuttle, Mr. and Mrs. R. N. Underdown, Mr. A. E. Waugh, Mr. and Mrs. G. B. Martin, Mr. and Mrs. R. M. Bates, Mr. and Mrs. E. N. Neiderauer, Mr. and Mrs. C. M. Connor, Mr. Chas. McDowell, Mr. and Mrs. W. T. Marble, Mr. and Mrs. J. C. Schmidt, Mr. and Mrs. Jos. Mellor, Mr. and Mrs. A. M. Cooper, Mr. and Mrs. Grellett N. Collins, Mr. and Mrs. Sam Reynolds and four guests, Mr. and Mrs. Frank McAndrews and two guests, Mr. and Mrs. Jacob Edge and two guests, Mr. C. H. Richards and one guest, Mr. and Mrs. O. D. Cordes and two guests, Mr. and Mrs. H. P. Cannon and two guests.

To Handle Brown Lines

The Merriam Paper Company of New York City has been appointed an agent for Greylock Linen Ledger in the New York-Metropolitan area. This paper is one of the 85 per cent white rag ledgers made by the L. L. Brown Paper Company, Adams, Mass.

The L. L. Brown Paper Company of Adams, Mass., has appointed Shaughnessy-Kniep-Hawe Paper Company of St. Louis a distributor in that territory of Brown's Linen Ledger, the 100 per cent white rag permanent record paper.

For the Drier Section

S K F Industries, Inc., Philadelphia, Pa., has just issued a very interesting booklet entitled "S K F for the Drier Section of Paper Machines." In the introduction to the pamphlet it is stated that "the improvement in the application of anti-friction bearings to the drier section in the past ten years add to the long list of outstanding S K F achievements in the paper industry over the past quarter of a century.

"From every viewpoint, S K F bearings, when applied to the drier section, offer outstanding advantages, among which are the following: 1. Reliability and increased production. 2. Reduced fire hazards. 3. Lower friction, resulting in power saving. 4. Since the starting torque is as low as the running torque, the power required for starting is materially reduced, so that smaller motors with a combined lower torque are sufficient. 5. Simplified and less expensive electrical control apparatus. 6. Lower friction and smoother action; therefore, increased felt life. 7. No bearing wear. Permanent line-up. 8. Longer gear life. 9. Maintenance is reduced to a mere periodic inspection. 10. Less lubricant."

A copy of the pamphlet may be had free upon application to S K F Industries, Inc.

Bantam Expands Again

The Bantam Ball Bearing Company is adding new machinery and building an addition to its plant at South Bend at a cost of $250,000. This new expansion gives an additional area slightly greater than the addition which was built last year which gave the factory a 60 per cent increase in floor space.

At the time of last year's expansion it was anticipated that the floor space added at that time would care for the company's needs for several years to come, but the increase in business has been so great that the company has had to provide additional plant and equipment facilities.

The finest equipment available in the industry for machining and grinding is being purchased as a means of securing greater production and assuring maximum control of quality.

In an interview A. H. Frauenthal, vice president and general manager, stated that their business had increased over 800 per cent since 1932.

The Bantam Company manufactures both roller and ball bearings in their South Bend plant in sizes ranging from 1/32 of an inch to 60 inches in diameter.

Packing Furniture in Fiber Board Boxes

The Freight Container Bureau has prepared an illustrated pamphlet on the proper packing of small articles of furniture in corrugated and solid fiber board boxes.

Damage to this commodity has been a serious and continuous source of trouble to the shippers, the consignees and the railroads alike, and this bulletin has been prepared to indicate to all interested parties how, by efficient packing, this situation may be greatly improved. Certain basic principles of proper interior packing are described and illustrated in this publication, which principles are not only applicable to the specific articles covered in the bulletin but also may be adapted to the packing of practically any small article of furniture.

It is hoped to place copies of this bulletin in the hands of all furniture manufacturers and dealers, all fiber board container manufacturers, and all railroad prevention officials and inspectors, so that it may be used as a guide in handling all packing problems involving this commodity when packed in fiber board containers.

Dillard Paper Co. Buys Building

GREENSBORO, N. C., June 23, 1936—The Dillard Paper company, whose plant was completely wrecked by the tornado on the evening of April 2, and which has been temporarily quartered in the Odell building at 322 South Davie street, has purchased the property of the old Guilford Lumber company, 518-524 South Ashe street, and hopes to be shortly quartered in its new home.

In Guilford Superior court Judge Julius A. Rousseau signed an order approving the sale of the property by the North Carolina Bank and Trust company to the Dillard Paper company, the price paid being given as $20,000.

The property in addition to a frontage on Ashe street has railroad siding facilities in the rear and there is a substantial brick structure of one story, with concrete floor and brick and steel construction, especially adaptable to the storing of paper products.

The Dillard Paper company has Stark S. Dillard for president, R. E. Morrisett for vice president and treasurer and Frank H. Hale, Jr., as secretary.

Mr. Morrisett stated that the new location was regarded as one unusually available for such a business, being near several of the main streets connecting with state highways. There is also ample space for expansion of the warehouse facilities as may later be necessary and the fact that all the space is on one floor will make the stock more accessible.

New F. C. C. Cord

The F. C. C. cord made with Cellophane by the Fibre Cord Company, 627-33 East 18 street, New York, is quite different in manufacture, appearance and practicability from anything on the market at present. This new cord is made in fourteen different colors and many variations of these colors. It is patented and contains a treated core. The effect of the core is to give the cord greater beauty, a pliability heretofore not possible in any cellulose cord, and greater strength. The fact that this cord is made with various widths of Cellophane and various types of core permits it to be manufactured in a wide range of gauges and combinations. The manufacturers of this cord see possibilities for many as yet undiscovered uses where combinations of beauty pliability and strength are essential.

FAW Revolving Wire Guide Pan

The Montague Machine Company, of Turners Falls, Mass., has been licensed to manufacture and sell the FAW revolving wire guide pan by Frank A. Walker, of Tonawanda, N. Y., who was granted a patent on this device in December, 1935.

"The big feature of the FAW wire guide pan," says the inventor, "is that it revolves with the wire and eliminates the many hazards of the old type wire guide pan. With the FAW there is no friction on the wire edge; the wire does not wear a slot in the pan and damage the wire edge with the ever-present danger of small cracks tearing deeper into the wire.

"The FAW revolving wire guide pan revolves on an anti-friction bearing and is completely chrome plated."

Crocker-Burbank Pays Largest Tax

FITCHBURG, June 23, 1936—Fitchburg's largest taxpayer is the Crocker-Burbank Paper Company, paying a tax of $204,880.60, a decrease of $8,914.72 from 1935. The paper company's assessed valuation decreased $492,250. The Crocker-Burbank assessment amounts to 12 per cent of the total levy.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JUNE 20, 1936

CIGARETTE PAPER

Standards Products Corp., *Normandie*, Havre, 29 cs.; H. H. Strauss, *Normandie*, Havre, 27 cs.; Champagne Paper Corp., *Normandie*, Havre, 467 cs.; R. J. Reynolds Tobacco Co., *Pr. Harding*, Havre, 151 cs.

WALL PAPER

———, *Stavangerfjord*, Oslo, 13 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., *American Merchant*, London, 5 bls., 1 cs.

NEWSPRINT

N. Y. Times Co., *Markland*, Liverpool, N. S., 255 rolls; N. Y. Tribune, Inc., *Markland*, Liverpool, N. S., 1,680 rolls; World Telegram, *Markland*, Liverpool, N. S., 602 rolls; Brooklyn Daily Eagle, *Markland*, Liverpool, N. S., 398 rolls; Standard Star, *Markland*, Liverpool, N. S., 45 rolls; South Norwalk Sentinel, *Markland*, Liverpool, N. S., 53 rolls; Clinton Paper Corp., *Markland*, Liverpool, N. S., 565 rolls; Gilman Paper Co., *Lido*, Port Alfred, 336 rolls; Daily Mirror, *Lido*, Port Alfred, 736 rolls; Perkins Goodwin & Co., *Berlin*, Bremen, 128 rolls; Jay Madden Corp., *Berlin*, Bremen, 132 rolls; Jay Madden Corp., *Svaneholm*, Kotka, 133 rolls; Gilman Paper Co., *Svaneholm*, Norrkoeping, 518 rolls; Jay Madden Corp., *Scanstates*, Kotka, 342 rolls; Walker, Goulard Plehn Co., Inc., *Scanstates*, Kotka, 174 bls.; Jay Madden Corp., *Scanmail*, Kotka, 772 rolls; Lunham & Reeve, Inc., *Scanmail*, Kotka, 227 rolls; Daily Mirror, *Scanmail*, Kotka, 12 rolls; ———, *Stavangerfjord*, Oslo, 377 rolls; Perkins Goodwin & Co., *New York*, Hamburg, 63 rolls; Jay Madden Corp., *Pr. Harding*, Hamburg, 225 rolls:

PRINTING PAPER

Steiner Paper Corp., *Berlin*, Bremen, 12 cs.; The Lafayette Co., *Scythia*, Liverpool, 2 cs.; Jay Madden Corp., *Scanstates*, Kotka, 93 rolls, 40 bls.

PACKING PAPER

———, *Pr. Cleveland*, Kobe, 10 cs.; A. J. Bullinger, *Black Eagle*, Rotterdam, 13 cs.; Irving Trust Co., *New York*, Hamburg, 15 cs.; J. P. Heffernan Paper Co., *New York*, Hamburg, 50 bls.

WRAPPING PAPER

Pulp & Paper Trading Co., *California*, Glasgow, 1 box; M. M. Cohen, *Pr. Harding*, Hamburg, 100 rolls; Walker, Goulard Plehn Co. Inc., *Pr. Harding*, Hamburg, 430 rolls; Jay Madden Corp., *Pr. Harding*, Hamburg, 725 rolls.

FILTER PAPER

H. Reeve Angel & Co. Inc., *American Merchant*, London, 11cs.

FILTER COMPOUND

A. W. Fenton, Co., *New York*, Hamburg, 100 bls.

SURFACE COATED PAPER

L. A. Consmiller, *Berlin*, Bremen, 11 cs.; Globe Shipping Co., *Berlin*, Bremen, 26 cs.; Japan Paper Co., *New York*, Hamburg, 2 cs.; C. Happel, *New York*, Hamburg, 5 cs.; Hensel Bruckman & Lorbacher, *New York*, Hamburg, 2 cs.; L. A. Consmiller, *Europa*, Bremen, 16 cs.; Globe Shipping Co., *Europa*, Bremen, 25 crates.

METAL PAPER

K. Pauli Co., *New York*, Hamburg, 28 cs.

PHOTO PAPER

American Express Co., *New York*, Hamburg, 21 cs.

DECALCOMANIAS

Sellers Transportation Co., *New York*, Hamburg, 6 cs.

BASIC PAPER

Dingelstedt & Co., *Europa*, Bremen, 2 cs.

COLORED PAPER

International F'd'g. Co., *New York*, Hamburg, 10 cs.; D. C. Andrews & Co., *Europa*, Bremen, 3 cs.

ENVELOPES

The Lafayette Co., *Scythia*, Liverpool, 1 cs.

STENCIL PAPER

———, *American Merchant*, London, 1 cs.

CARD BOARD

Metropolitan Importing & Manufacturing Co., *Pr. Harding*, Hamburg, 9 cs.

PAPER TUBES

———, *New York*, Hamburg, 205 pkgs.

MISCELLANEOUS PAPER

Japan Paper Co., *Pr. Cleveland*, Kobe, 41 cs.; Parsons & Whittemore, Inc., *Svancholm*, Gothenburg, 72 rolls; Marshall Field & Co., *Normandie*, Havre, 6 pkgs.; Keller Dorian Paper Co., *Pr. Wilson*, Marseilles, 2 cs.; D. C. Andrews & Co., *New York*, Hamburg, 6 rolls; ———, *New York*, Hamburg, 676 rolls.

RAGS, BAGGINGS, ETC.

E. Butterworth & Co. Inc., *American Shipper*, Liverpool, 123 bls. paper stock; E. J. Keller Co. Inc., *American Shipper*, ———, 28 bls. bagging; ———, *American Shipper*, Liverpool, 39 bls. cotton waste; J. Cohen & Son, Inc., *Scythia*, Liverpool, 27 bls. rags; E. J. Keller Co. Inc., *Executive*, ———, 163 bls. bagging; ———, *California*, *Glasgow*, 31 bls. paper stock; Darmstadt Scott & Courtney, *Pr. Wilson*, Bombay, 90 bls. rags; Royal Manfg. Co., *Pr Wilson*, Bombay, 100 bls. cotton waste; A. W. Fenton, Co., *American Merchant*, London, 90 bls. rags; Manufacturers Trust Co., *American Merchant*, London, 65 bls. old strings; Bank of N. Y. Trust Co., *Ingria*, Valencia, 200 bls. rags, 124 bls. bagging; Banco Com'l. Italiane Trust Co., *Ingria*, Valencia, 179 bls. rags; ———, *Ingria*, Barcelona, 70 bls. rags; Bank of N. Y. Trust Co., *Ingria*, Barcelona, 51 bls. old cottons, 74 bls. tares; Chase National Bank, *Ingria*, Barcelona, 100 bls. bagging; E. J. Keller Co. Inc., *Ingria*, ———, 133 bls. paper stock; E. J. Keller Co. Inc., *Black Eagle*, ———, 448 bls. bagging; Globe Mill Supply Co., *Black Eagle*, Rotterdam, 44 bls. rags; Loumar Textile By-Products Co., *Black Eagle*, Rot-

terdam, 55 bls. bagging; W. Steck & Co., *Scanmail*, Copenhagen, 53 bls. burlap cuttings; S. Shapiro & Co., *Pr. Harding*, Hamburg, 115 bls. rags.

OLD ROPE

Manufacturers Trust Co., *American Merchant*, London, 47 coils; W. Steck & Co., *Scanmail*, Copenhagen, 32 coils; ———, *Montreal City*, Bristol, 42 coils; Chase National Bank, *Montreal City*, Bristol, 172 coils.

CASEIN

———, *Canadian Scottish*, Auckland, 1,069 bags; T. M. Duche & Son, *Pan America*, Buenos Ayres, 834 bags.

CHINA CLAY

Whitaker Clark & Daniels, Inc., *Montreal City*, Bristol, 390 bags.

WOOD PULP BOARDS

Jay Madden Corp., *Svancholm*, Kotka, 165 rolls; Jay Madden Corp., *Svancholm*, Viipuri, 133 rolls; Jay Madden Corp., *Scanmail*, Kotka, 50 rolls; ———, *Volendam*, Rotterdam, 510 bdls.; ———, *New York*, Hamburg, 154 bls.

WOOD PULP PASTE BOARDS

Fibre Products Manfg. Co., *Pr. Harding*, Hamburg, 52 bls.

WOOD PULP SHEETS

———, *Berlin*, Bremen, 85 bls.; ———, *New York*, Hamburg, 60 bls.

WOOD PULP

Johaneson Wales & Sparre, Inc., *Simon von Utrecht*, Sundsvall, 1,275 bls. sulphite, 250 tons; Johaneson Wales & Sparre, Inc., *Simon von Utrecht*, Sundsvall, 4,125 bls. chemical, 825 tons; Mead Sales Co., *Simon von Utrecht*, Sundsvall, 210 bls. chemical, 42 tons; Mead Sales Co., *Simon von Utrecht*, Sundsvall, 210 bls. sulphite, 42 tons; Atterbury Bros. Inc., *Simon von Utrecht*, Sundsvall, 300 bls. chemical, 50 tons; Bulkley Dunton & Co., *Simon von Utrecht*, ———, 14,575 bls. wood pulp; Brown Bros. Harriman & Co., *Simon von Utrecht*, Hernosand, 1,350 bls. sulphite, 225 tons; Brown Bros. Harriman & Co., *Simon von Utrecht*, Hernosand, 23 bls. sulphite, 3 tons; ———, *Simon von Utrecht*, Hernosand, 3,450 bls. sulphate, 575 tons; Castle & Overton, Inc., *Svancholm*, Viipuri, 920 bls. wood pulp; Lagerloef Trading Co., *Svancholm*, Kirkkeniemi, 5,375 bls. sulphite; Lagerloef Trading Co., *Svancholm*, Rauma, 3,707 bls. sulphite; J. Andersen & Co., *Svancholm*, Stockholm, 600 bls. sulphite; Gottesman & Co. Inc., *Svancholm*, Stockholm, 450 bls. sulphite; Perkins Goodwin & Co., *Svancholm*, Gothenburg, 1,016 bls. kraft pulp; Lagerloef Trading Co., *Scanstates*, Kotka, 1,016 bls. sulphite, 196 tons; Lagerloef Trading Co., *Scanstates*, Helsingfors, 130 bls. mechanical, 26 tons; Gottesman & Co. Inc., *Stavangerfjord*, Oslo, 3,300 bls. sulphite; Irving Trust Co., *Stavangerfjord*, Oslo, 1,005 bls. mechanical; The Borregaard Co. Inc., *Stavangerfjord*, Sarpsborg, 1,008 bls. sulphate; N. Y. Trust Co., *New York*, Hamburg, 318 bls. wood pulp, 48 tons; Central Hanover Bank Trust Co., *New York*, Hamburg, 2,200 bls. wood pulp, 340 tons; Castle & Overton, Inc., *New York*, Hamburg, 425 bls. wood pulp, 85 tons; ———, *Giulia*, Trieste, 510 bls. wood pulp; ———, *Pr. Harding*, Hamburg, 150 bls. wood pulp, 15 tons.

NEWARK IMPORTS

WEEK ENDING JUNE 20, 1936

H. G. Craig Co., *Donpaco*, Donnacona, 315 rolls newsprint.

ALBANY IMPORTS

WEEK ENDING JUNE 20, 1936

Johaneson Wales & Sparre, Inc., *Simon von Utrecht*, Sundsvall, 1,420 bls. sulphite, 270 tons; Johaneson Wales & Sparre, Inc., *Simon von Utrecht*, Sundsvall, 750 bls. chemical, 150 tons; Atterbury Bros. Inc., *Simon von Utrecht*, Sundsvall, 600 bls. dry pulp, 100 tons; Perkins Goodwin & Co., *Simon von Utrecht*, Sundsvall, 6,600 bls. sulphate, 1,100 tons; ———, *Simon von Utrecht*, Sundsvall, 98 bdls. wall board; ———, *Simon von Utrecht*, Hernosand, 1,800 bls. sulphate, 300 tons; Gottesman & Co. Inc., *Simon von Utrecht*, 300 bls. sulphite, 50 tons; Perkins Goodwin & Co., *Simon von Utrecht*, Munksund, 2,496 bls. sulphate, 416 tons; Perkins Goodwin & Co., *Simon von Utrecht*, Soderhamn, 2, 750 bls. sulphate, 550 tons; Perkins Goodwin & Co., *Simon von Utrecht*, Soderhamn, 500 bls. sulphite, 100 tons; Bulkley Dunton & Co., *Simon von Utrecht*, ———, 4,900 bls. wood pulp, 850 tons.

PORTLAND IMPORTS

WEEK ENDING JUNE 20, 1936

Bulkley Dunton & Co., *Bessa*, ———, 2500 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING JUNE 20, 1936

———, *Canadian Scottish*, Auckland, 13 bags casein; ———, *Scythia*, Liverpool, 17 bls. rags; G. F. Malcolm, Inc., *Scythia*, Liverpool, 29 cs. tissue paper; F. S. Webster, Co., *Scythia*, Liverpool, 3 cs. tissue paper; ———, *American Merchant*, London, 138 bls. waste paper; ———, *American Merchant*, London, 28 bls. paper stock, 42 bls. rags; Atkinson Haserick & Co., *Pr. Wilson*, Genoa, 1 cs. paper; Bulkley Dunton & Co., *Bessa*, ———, 3,250 bls. wood pulp; Bulkley Dunton & Co., *Sandhamn*, ———, 2,325 bls. wood pulp; Pagel Horton & Co. Inc., *Bessa*, Sweden, 995 bls. sulphate, 191 tons; Pagel Horton & Co. Inc., *Bessa*, Sweden, 2,330 bls. sulphite, 341 tons; Price & Pierce, Ltd., *Bessa*, ———, 550 tons unbleached sulphite; Price & Pierce, Ltd., *Bessa*, ———, 80 tons kraft pulp; Parsons & Whittemore, Inc., *McKeesport*, ———, 1,000 bls. wood pulp; E. J. Keller Co. Inc., *Osiris*, ———, 312 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JUNE 20, 1936

Brown Bros. Harriman & Co., *Simon von Utrecht*, Hernosand, 803 bls. sulphite, 124 tons; Mead Sales Co., *Simon von Utrecht*, Sundsvall, 300 bls. sulphate, 50 tons; ———, *Ingria*, Barcelona, 745 bls. glue stock; Johaneson Wales & Sparre, Inc., *Scanmail*, Gdynia, 1,500 bls. wood pulp, 150 tons; J. W. Hampton Jr. Inc., *Scanmail*, Kotka, 75 bls., 340 rolls newsprint; Gottesman & Co. Inc., *Scanmail*, Stockholm, 1,000 bls. chemical pulp, 101 tons; ———, *Breedyk*, Rotterdam, 85 bls. rags; E. J. Keller Co. Inc., *Beemsterdyk*, ———, 59 bls. paper stock; E. J. Keller Co. Inc., *Black Condor*, ———, 359 bls. paper stock.

CANADA IMPORTS

WEEK ENDING JUNE 20, 1936

Pagel Horton & Co. Inc., *Simon von Utrecht*, Munksund, 1,500 bls. sulphate, 250 tons.

WILMINGTON IMPORTS

WEEK ENDING JUNE 20, 1936

Castle & Overton, Inc., *Scanmail*, Kotka, 3,016 bls. sulphite, 603 tons.

(Continued on page 56)

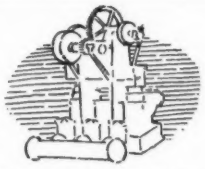
mineral pigments

NATURAL AND SYNTHETIC

FOR PERMANENT COLORS
Brown, Red and Yellow
Iron Oxides
Green Oxides of Chromium

C. K. WILLIAMS & COMPANY
EASTON·PENNSYLVANIA

★ *Want*
STUFF PUMPS
without FRILLS?



S & W pumps cost less to buy and run. They are designed without frills to lower paper mill pumping costs. They require little care—are made to stand the gaff. May we quote you on Fan pumps, Post stuff pumps and Duplex or Triplex stuff pumps? Bulletins will be sent on request.

S & W—*the oldest name in paper mill machinery.*

The SMITH & WINCHESTER MFG. Co.
SOUTH WINDHAM, CONNECTICUT 203

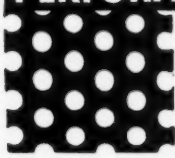
GLAZED TILE TANKS

Cost less and much more durable than concrete or cypress. Cleaner. Will not "slime up." Over 300 now in use in mills from Maine to Minnesota.

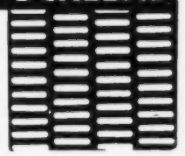
KALAMAZOO
TANK and SILO COMPANY
Kalamazoo Michigan

We've been building wood stock chests, acid tanks and blow pits for over 60 years.

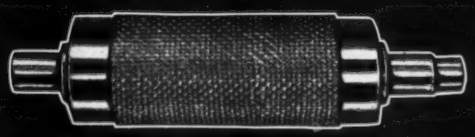
PERFORATED METAL SCREENS



MADE SPECIALLY FOR PAPER and PULP MILL USE
Copper, bronze, steel or other metals. Heat-treated.
HENDRICK MFG. CO.
50 Dundaff St. Carbondale, Pa.
Offices in Principal Cities

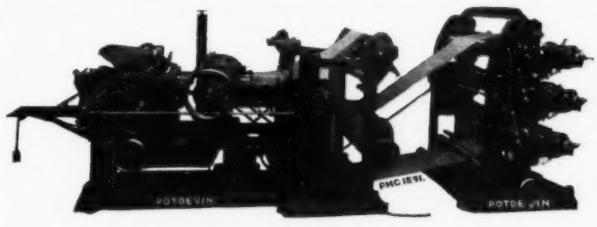


EMBOSSING ROLLERS



ROEHLEN ENGRAVING WORKS INC.
324 ST. PAUL ST.
ROCHESTER, N. Y.

UNION TALC CO.
TALC & AGALITE
FILLERS for PAPER
41 Park Row New York



POTDEVIN
NOTION BAG MACHINE

MOST EFFICIENT

OVER 850 BAGS PER MINUTE
PRODUCES BOTH FLAT & SQUARE BAGS
FULL RANGE OF 6 STANDARD NOTION BAGS
HANDLES KRAFT, GLASSINE, BOND & SULPHITE

ALSO MAKERS OF WAXERS & PRESSES

POTDEVIN MACHINE CO.
1223 38TH ST. BROOKLYN, N. Y.
Est. 1893 Tel. WIndsor 6-1700

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, June 24, 1936.

Conditions in the local paper market are fairly satisfactory for the time of year. Demand for the various grades of paper is moderately active. Supplies are moving into consumption in routine manner. Sales forces of the leading paper organizations are preparing for a busy Fall campaign. Prices are holding to schedule, in most instances.

The newsprint paper market is exhibiting a strong undertone. Demand from the leading newspaper publishers is persistent and manufacturing operations have been speeded up to take care of current requirements. While the price situation continues unchanged there are many predictions of advances in 1937.

One large manufacturer reduced the price of No's. 1 and 2 sulphite bonds and ledgers $5 per ton. Other mills followed the lead. Considering the firmness and scarcity of bleached sulphite pulp this movement is rather surprising. Book papers continue steady. Tissues are moving in good volume. The coarse paper market is steady to firm.

Mechanical Pulp

The position of the ground wood pulp market is practically unchanged. Demand for Canadian and domestic mechanical pulp is listless, while imported ground wood pulp is only in light request. Production is normal for the season. Since the revisions reported last week no further price changes have transpired.

Chemical Pulp

Business in the chemical pulp market is well sustained. Bleached sulphite and kraft pulps continue strong, with offerings decidedly limited. Manufacturers are showing more interest in the bleachable grades of unbleached sulphite. Other grades of chemical pulp remain steady and unchanged.

Old Rope and Bagging

The old rope market is quiet. Demand for domestic and foreign old manila rope is restricted. Mixed strings are moving slowly. The bagging market is dull. Both scrap and gunny bagging are attracting little interest at present. Roofing bagging is moderately active. Old rope and bagging quotations are nominal.

Rags

Steadiness prevails in the domestic rag market. Paper mill demand for new cotton rags is fairly good. More export inquiries are around for No. 1 white shirt cuttings and bleached hosiery. Roofing rags are easier and prices on several of the grades have declined slightly. No radical changes have been reported in the imported rag market.

Waste Paper

Board mill demand for the lower grades of paper stock is showing signs of improvement. The price situation is firmer. Strictly folded news is now offered at from 30 to 35 cents and No. 1 mixed paper at from 22½ to 27½ cents. The higher grades of waste paper are irregular. Book stock, however, is stronger.

Twine

The local twine market is in a fairly sound statistical position for the time of year. Demand for the various varieties has been well sustained and the outlook for the future is regarded as promising. Prices are generally holding to formerly quoted levels, despite severe competition for extra desirable orders.

IMPORTS OF PAPER AND PAPER STOCK

(Continued from page 54)

BALTIMORE IMPORTS

WEEK ENDING JUNE 20, 1936

Congoleum Nairn Co., *Executive,* Valencia, 487 bls. rags, 120 bls. bagging; Congoleum Nairn Co., *Black Eagle,* Rotterdam, 140 bls. rags; American British Chemical Supplies, *Black Eagle,* Rotterdam, 709 bags casein; M. M. Morris, *Breedyk,* Rotterdam, 100 bls. wood pulp boards; N. Y. Trust Co., *Breedyk,* Rotterdam, 464 bls. wood pulp; Gottesman & Co. Inc., *Topeka,* Norway, 2,400 bls. wood pulp; Price & Pierce, Ltd., *Consul Corfitzon,* ——— 750 tons kraft pulp; Price & Pierce, Ltd., *Consul Corfitzon,* ———, 575 tons unbleached sulphite.

NORFOLK IMPORTS

WEEK ENDING JUNE 20, 1936

Irving Trust Co., *Black Eagle,* Rotterdam, 83 bls. bagging.

SOUTH HAVEN IMPORTS

WEEK ENDING JUNE 20, 1936

Price & Pierce, Ltd., *Gudvang,* ———, 300 tons unbleached sulphite; Price & Pierce, Ltd., *Honnor,* ———, 290 tons bleached sulphite.

DETROIT IMPORTS

WEEK ENDING JUNE 20, 1936

Price & Pierce, Ltd., *Honnor,* ———, 200 tons bleached sulphite.

MONTREAL IMPORTS

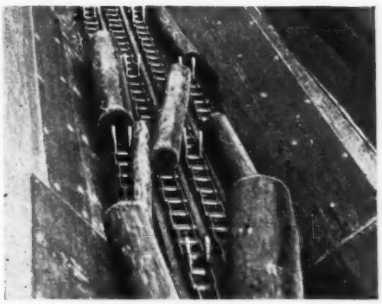
WEEK ENDING JUNE 20, 1936

Gottesman & Co. Inc., *Bjonn,* Sweden, 5,400 bls. wood pulp; Price & Pierce, Ltd., *Bretagne,* ———, 850 tons unbleached sulphite; Price & Pierce, Ltd., *Leka,* ———, 500 tons unbleached sulphite; Pagel Horton & Co. Inc., *Bretagne,* Sweden, 6,900 bls. sulphate, 1,150 tons; Pagel Horton & Co. Inc., *Bretagne,* Sweden, 9,920 bls. sulphite, 1,570 tons.

SWW
For almost a century the industry's main source of supply for:
Beater Bars—standard bars—special bars of carbon, alloy steel, stainless steel and bronze.
Bed Plates—standard patterns—patterns to customers' specifications.
Knives—paper cutting knives and chipper knives.
Grinders—Dayton roll bar grinders—Dayton abrasive wheels.
Send your order to Dayton.
SIMONDS WORDEN WHITE COMPANY
Dayton, Ohio

Why you should use

LINK-BELT CHAINS



Some LINK-BELT Products

- Elevators and Conveyor
- Sprocket Wheels
- Silent Chain Drives
- Roller Chain Drives
- Speed Reducers
- Power Transmission Equipment

● Link-Belt makes all types of conveying and driving chains (Malleable Iron, Promal or Steel), and therefore is free to recommend the one that is best for the purpose. Large chain stocks assure prompt shipment. Catalogs.

LINK-BELT COMPANY 5625

CHICAGO INDIANAPOLIS PHILADELPHIA ATLANTA
SAN FRANCISCO TORONTO Offices in Principal Cities

OUR CLAYS ARE NATURAL, THEREFORE FAST COLOR
NOT ARTIFICIALLY BLUED OR BLEACHED
Superior Quality and Service Obtains Business

ENGLISH ECCO CLAYS **CLAYS**

English China Clays Sales Corporation
551 Fifth Avenue New York City

J. Andersen & Co.
Selling Agents
21 East 40th Street
New York

CHEMICAL & MECHANICAL PULP

Kraft Pulp
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
KALIX TRÄINDUSTRI AKTIEBOLAG
Vanaffjärden, Sweden
MUNKSUNDS AKTIEBOLAG
Munksund, Sweden
NENSJÖ CELLULOSA A.-B.
Sprängsviken, Sweden

Bleached Sulphite
KELLNER-PARTINGTON PAPER PULP CO., LTD.
Sarpsborg, Norway
Edsvalla, Sweden
Hallein & Villach, Austria

Unbleached Sulphite
AKTIESELSKABET GREAKER CELLULOSEFABRIK
Greaker, Norway
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
CELLULOSEFABRIKS A.-G.
Bratislava, Czecho-Slovakei
SVANÖ AKTIEBOLAG
Svanö, Sweden

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, June 24, 1936.

BLANC FIXE—Business in the blanc fixe market is moderately active. Prices are holding to formerly quoted levels. The pulp is quoted at $42.50 to $45 per ton, in bulk; while the powder is selling at 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—The position of the bleaching powder market is practically unchanged. Shipments against contract are moving in fairly good volume. Prices continue steady. Bleaching powder is quoted at $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The casein market is fairly active. Domestic standard ground is quoted at 15 and finely ground at 15½ cents; while French and Argentine standard ground are selling at 15¼ cents and finely ground at 15½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA—Paper mill demand for caustic soda is satisfactory for the season. The contract movement is normal. Solid caustic soda is still quoted at $2.55 to $2.60; the flake and ground are selling at $2.95 to $3 per 100 pounds, in drums, at works

CHINA CLAY—The china clay market is displaying strength. Supplies are moving into consumption in good volume. Imported china clay is quoted at $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at $6.50 to $12 per ton, at mine.

CHLORINE—Conditions in the chlorine market are satisfactory. The contract movement is well up to average for the time of year. Prices are holding to schedule without difficulty. Chlorine is quoted at $2.15 to $2.55 per 100 pounds, in tank cars, at works.

ROSIN—The rosin market is stronger. Paper making gum rosin is now quoted at $4.60 and wood rosin at $4.70 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.60 per 100 pounds, in tank cars, at works.

SALT CAKE—Steadiness prevails in the salt cake market. The contract movement is fairly heavy. Prices remain unchanged. Salt cake is quoted at $12 to $13; Chrome salt cake at $11 to $12 per ton, at works. Imported salt cake is selling at $12 to $13 per ton, ship side.

SODA ASH—The soda ash market is exhibiting a fairly strong undertone. Contract shipments are moving regularly. Prices are steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.20; and in barrels, $1.50.

STARCH—No radical changes transpired in the starch market. Demand from the paper mills is mainly routine. Prices are holding to schedule. Special paper making starch is quoted at $3.20 per 100 pounds, in bags; and at $3.47 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA—Demand for sulphate of alumina is fairly brisk. The contract movement is good for the season. Prices remain unchanged. Commercial grades are quoted at $1.35 to $1.60; and iron free at $2 to $2.25 per 100 pounds, in bags, at works.

SULPHUR—The sulphur market is steady. Yearly contracts are quoted at $18 per ton, in bulk, on orders of 1,000 tons, or over and $20 on smaller quantities. On spot and nearby car loads the quotation is $21 per ton. All quotations are in car lots, at works.

TALC—Trading in the talc market is only moderately active. The contract movement is seasonal. Prices remain unchanged. Domestic talc is quoted at $16 to $18 per ton, at eastern mines; while imported talc is selling at $23 to $30 per ton, on dock.

Market Quotations

Paper

Rag Content Bond & Ledgers—Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50 @ 8.50	
No. 2 Sulphite	6.50 @ 7.50	
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

Book, Casein		
S. & S. C.	5.35	@ 5.75
S. & S. C. Litho.	5.60	@ 6.00
M. F.	5.10	@ 5.50
Coated and Enamel	5.90	@ 6.55
Coated Litho	5.90	@ 6.55
Tissues—Per Ream		
White No. 1	.82½	@ —
White No. 1 M. G.	.77½	@ —
White No. 1½	.62½	@ —
White No. 2	.60	@ —
Anti-Tarnish M. G.	.67½	@ —
Colored	.80	@ —
Kraft	.67½	@ —
Manila	.60	@ —
Unbleached Toilet	2.60	@ 3.30
Bleached Toilet	3.94	@ 5.26
Paper Towels—		
Unbleached	2.10	@ 3.35
Bleached	3.30	@ 3.70
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75

(Delivered New York)

News, per ton—		
Roll, contract	41.00	@ —
Sheets	46.00	@ —
Kraft—		
No. 1 Northern	4.25	@ 4.75
Standard	4.12½	@ —
Southern	4.00	@ —
Boards—per ton—		
News	32.50	@35.00
Chip	32.50	@35.00
Sgl. Mla. Ll. Chip	45.00	@47.50
Jute Lined Chip	42.50	@45.00
Kraft Liners	60.00	@62.50
White Pat. Coated	55.00	@57.50
Binders Boards	67.00	@75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—		
Moist	24.00	@25.00
Dry	24.00	@25.00

(Delivered)

No. 1 Domestic and Canadian	27.00	@28.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—		
Division 1	2.70	@ 3.10
Division 2	2.65	@ 2.75
Division 3	2.60	@ 2.70
Prime Qualities—		
Class 1. All Prime Easy Bleaching	2.05	@ 2.10
Other Than Easy Bleaching—		
Class 2. Higher than Standard	2.00	@ 2.05
Class 3, Standard	1.95	@ 2.00
Class 4, Lower than Standard	1.90	@ 1.95

(On Dock, Atlantic Ports)

Kraft Bleached	3.00	@ 3.25
Kraft No. 1	1.85	@ 2.00
Kraft No. 2	1.70	@ 1.80

(F. o. b. Pulp Mill)

Kraft Domestic	1.80	@ 2.00

(Delivered)

Soda Bleached	2.60	@ —

* Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	7.50	@ 8.00
Silesias No. 1	5.50	@ 5.75
New Unbleached	8.25	@ 8.50
New Soft Blacks	3.75	@ 4.00
Blue Overall	5.75	@ 6.00
Fancy	3.25	@ 3.50
Washables	2.25	@ 2.50
Mixed Khaki Cuttings	3.50	@ 3.75
O. D. Khaki Cuttings	4.25	@ 4.50
Men's Corduroy	2.00	@ 2.25
New Mixed Blacks	2.75	@ 3.00

Old Rags

White, No. 1—		
Repacked	3.00	@ 3.50
Miscellaneous	2.75	@ 3.25
White, No. 2—		
Repacked	1.75	@ 2.25
Miscellaneous	1.50	@ 1.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	2.10	@ 2.20
Roofing Rags—		
No. 1	1.80	@ 1.85
No. 2	1.35	@ 1.40
No. 3 (bagging)	1.25	@ 1.30
No. 4	1.25	@ 1.30
No. 5A	.90	@ 1.00

Foreign Rags

New Rags

New Dark Cuttings	2.25	@ 2.50
New Mixed Cuttings	2.00	@ 2.25
New Light Silesias	4.50	@ 5.00
Light Flannelettes	4.50	@ 5.00
New White Cuttings	7.00	@ 7.50
New Light Oxfords	4.00	@ 4.50
New Light Prints	3.00	@ 3.25

Old Rags

No. 1 White Linens	7.50	@ 8.00
No. 2 White Linens	6.50	@ 7.00
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	2.25	@ 2.50
No. 1 White Cotton	4.25	@ 4.75
No. 2 White Cotton	3.25	@ 3.75
No. 3 White Cotton	2.50	@ 2.75
No. 4 White Cotton	1.90	@ 2.15
Extra Light Prints	2.00	@ 2.25
Ord. Light Prints	1.75	@ 1.85
Med. Light Prints	1.55	@ 1.65
Dutch Blue Cottons	2.25	@ 2.50
French Blue Linens	3.50	@ 4.00
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	2.00	@ 2.25
Linsey Garments	2.15	@ 2.25
Dark Cottons	1.90	@ 2.10
Old Shopperies	1.75	@ 2.00
New Shopperies	1.75	@ 2.00
French Blues	2.25	@ 2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	2.10	@ 2.15
Domestic	1.90	@ 2.00
Wool Tares, light	1.50	@ 1.75
Wool Tares, heavy	1.85	@ 2.05
Bright Bagging	1.75	@ 1.80
Manila Rope—		
Foreign	2.35	@ 2.45
Domestic	2.25	@ 2.35
Mixed Strings	1.10	@ 1.15
New Burlap Cut	2.50	@ 2.75
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
White Envelope Cuttings	2.55	@ 2.65
Ordinary Hard White No. 1	2.25	@ 2.35
Hard White No. 2	2.10	@ 2.20
Soft White No. 1	2.05	@ 2.15
Flat Stock—		
Stitchless	.65	@ .75
Over issue Mag	.65	@ .75
Solid Flat Book	.55	@ .60
Crumpled No. 1	.35	@ .40
Solid Book Ledger	1.50	@ 1.65
Ledger Stock	.85	@ .90
New B. B. Chips	.30	@ .35
Manilas—		
New Env. Cut	1.75	@ 1.85
New Cuttings	1.35	@ 1.45
Bogus Wrapper	.40	@ .50
Old Kraft Machine—		
Compressed bales	1.05	@ 1.30
News—		
No. 1 White News	1.30	@ 1.40
Strictly Overissue	.50	@ .60
Strictly Folded	.30	@ .35
No. 1 Mixed Paper	.22½	@ .27½

Non-Clogging
Paper Stock Pumps

"Buffalo"

Ask for Bulletin 953

Buffalo Pumps, Inc.
443 Broadway Buffalo, N. Y.
In Canada, Canada Pumps Ltd., Kitchener, Ont.

TRAYLOR
KILNS, COOLERS, DRYERS, SCRUBBERS, SLAKERS

Are used by many of the greatest chemical and process industries—a fact that paper manufacturers cannot afford to overlook.

Write us for details—No obligation!

TRAYLOR ENGINEERING & MFG. CO.
ALLENTOWN, PENNSYLVANIA, U. S. A.
NEW YORK CITY 3916 Empire State Bldg. CHICAGO 2151 One LaSalle St. Bldg. SALT LAKE CITY 101 West Second South St.
LOS ANGELES 919 Chester Williams Bldg. SEATTLE 6311 22nd Ave., N. E.
Timmins, Ontario, Canada—P. O. Box 113

Pulp and Paper Mill Screens
Of Stainless Steel—Copper—Bronze—Monel—Chemical Resisting Alloys
Perforations that are accurate in size
Any Metal Any Perforation

The Harrington & King Perforating Co.
5652 Fillmore St., Chicago, Ill. 114 Liberty St., New York, N.Y.

CASEIN

Uniform Quality
Dependable Service
Special Types to Meet Unusual Requirements

CASEIN COMPANY OF AMERICA, INC.
350 Madison Avenue, New York, N. Y.
Oldest and Largest Producers of Casein in America

Finishing Equipment Check-Up

CHECK-UP on your finishing equipment today. Make sure that it is in top condition. If not, ask our engineering department about repairs, alterations or replacements.

Norwood Engineering Co. Florence, Mass.

GEORGE F. HARDY
Consulting Engineer
305-309 Broadway, New York City, N. Y.
Member—Am. Soc. C.E.—Am. Soc. M.E.—Eng. Inst. Can.

Consultation	Paper and Pulp Mills
Reports	Hydro-Electric and
Valuations	Steam Power Plants
Estimates	Plans and Specifications

TRIMBEY MACHINE WORKS
GLENS FALLS, N. Y.
Manufacturers of
WEIGHT REGULATORS
CONSISTENCY REGULATORS
PROPORTIONING AND METERING SYSTEMS
PULP SCREENS—FLOAT VALVES

HARDY S. FERGUSON & CO.
Consulting Engineers
200 FIFTH AVENUE, NEW YORK CITY
Hardy S. Ferguson .....Member A.S.C.E., A.S.M.E., E.I.C.
Moses H. Teaze .....Member A.S.M.E., E.I.C., A.S.C.E.
J. Wallace Tower .....Member A.S.C.E., A.S.M.E.
Consultation, reports, valuations, and complete designs and engineering supervision for the construction and equipment of
Pulp and Paper Mills and other Industrial Plants.
Steam and Hydro-electric Power Plants.
Dams and other Hydraulic Structures.

JOHNSON & WIERK, INC.
PULP AND PAPER MILL ENGINEERS
Grand Central Terminal Bldg., NEW YORK, N. Y.
Branch: 246 Stuart Street BOSTON, MASS.

Twines

(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—			
India	.13¼	@	.15¾
Belg. White Hemp	.14¼	@	.17¾
India Compress	.13¾	@	.14¾
Fine Polished—			
Fine India	.21½	@	.23½
Special	.19½	@	.21½
Unpolished—			
Box	.12	@	.12½
Paper Makers	.09	@	.13½
Tube Rope	.10	@	.15½
Wall Paper	.11	@	.14½
Wrapping	.15½	@	.21
Special	.15	@	.15½
Soft Fiber Rope	.12½	@	.12¾

(Hard Fibre)

Bond	.12	@	.20½
Anchor	.11½	@	.13
Manila	.21	@	.25

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.40
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.07¾
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¾	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	42.00	@	—
Sheets, open	47.00	@	—
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent Coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.60	@	.70
Solid Books	.50	@	.60
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1 Folded News	.42½	@	.45
No. 1 Mixed Paper	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, M. F.	5.00	@	—
Book, S. S. & C.	5.25	@	—
Book, Coated	6.15	@	—
Coated Lithograph	6.15	@	—
No. 1 Jute Manila	10.50	@	—
Manila Sul., No. 1	6.75	@	—
Manila No. 2	4.25	@	—
No. 1 Kraft	6.00	@	—
Southern Kraft	5.00	@	—
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.08	@	.08½
New White, No. 2	.04½	@	.05
Light Silesias	.05½		—
Silesias, No. 1	.04½	@	.05
Black Silesias, soft	.03½	@	.04
New Unbleached	.06	@	—
Washable, No. 1	.02	@	.02½
Blue Overall	.06	@	.06½
Cottons—According to grades—			
Washable, No. 2	.02½	@	.04½
New Blue	.01¾	@	.02¼
Fancy	.03	@	—
New Black Soft	.04	@	.04½
New Light Seconds	.03½	@	.04
New Dark Seconds	1.75	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.04	@	.04½
No. 2 Mixed	.03½	@	.04
Corduroy	.02	@	.02½
New Canvas	.04	@	.04½
New Black Mixed	.02	@	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	4.00	@	4.50
Miscellaneous	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	2.00	@	—
Repacked	2.25	@	2.50
Black Stockings (Export)	4.50	@	5.00
Roofing Stock—			
Foreign No. 1	2.20	@	2.25
Domestic No. 1	1.80	@	1.85
Domestic No. 2	1.60	@	1.65
Roofing bagging	1.30	@	—

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	2.00	@	—
Domestic	2.25	@	—
Manila Rope	2.25	@	2.50
Sisal Rope	2.00	@	2.25
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	2.00	@	2.50
No. 2	.90	@	1.00
Wool Tares, heavy	3.00	@	3.25
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	3.00	@	3.50
New Burlap Cuttings	2.50	@	2.75

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.30	@	2.40
No. 2 Hard White	2.10	@	2.20
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.40	@	1.45
No. 1 Mixed	—	@	.85
Solid Ledger Stock	1.50	@	1.60
Ledger Stock, white	1.15	@	1.20
Ledger Stock, colored	.85	@	.90
No. 1 Books, heavy	.65	@	.70
Manila Cuttings	1.50	@	1.60
Print Manila	.50	@	.60
Container Manila	.50	@	.60
Kraft Paper	1.10	@	1.20
No. 1 Mixed Paper	.35	@	.40
Straw Board Chip	.40	@	—
Binders Board Chip	.40	@	—
Corrugated Board	.60	@	.65
Overissue News	.60	@	—
Old Newspapers	.40	@	—

BOSTON

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50	8.50
No. 2 Sulphite	6.50	7.50
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¼	@	—
No. 2 Kraft	.04½	@	—
(Delivered New England points)			
Southern Kraft	.04	@	—
News Print Rolls	39.50	@	—
Straw Board, rolls	.009	—	@35.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	55.00	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.10
No. 1 Soft White	1.75	@	1.85
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.60	@	.65
White Blank News	1.20	@	1.25
No. 1 Kraft	1.05	@	1.12½
Mixed Papers	.22½	@	.25
Print Manila	.47½	@	.50
Container Manilas	.27½	@	—
Old Newspapers	.25	@	.27½
Overissue News	—	@	.40
Box Board Chips	—	@	.25
Corrugated Boxes	.35	@	.37½
Kraft corrugated boxes	.90	@	.95
Screening Wrappers	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.35	@	2.45
Domestic	2.25	@	—
Transmission Rope	1.20	@	1.30
Jute Rope	2.00	@	2.25
Jute Carpet Threads	1.00	@	1.10
Gunny No. 1—			
Foreign	1.90	@	2.00
Domestic	1.80	@	1.90
Bleachery Burlap	4.50	@	5.00
Scrap Burlap—			
Foreign	2.00	@	2.10
Domestic	1.75	@	1.85
Scrap Sisal	1.90	@	2.00
Scrap Sisal for Shredding	2.10	@	2.35
Wool Tares, heavy	1.90	@	2.00
New Burlap Cuttings	2.00	@	2.25
Australian Wool Pouches	2.30	@	2.60
Heavy Baling Bagging	1.95	@	2.00
Paper Mill Bagging	1.75	@	1.85
Bagging No. 2	1.15	@	1.40

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.01¾	@	.02
New White No. 1	.07½	@	.07¾
New White No. 2	.04	@	.04¼
Silesias No. 1	.05	@	.05½
New Black Silesias	.03½	@	.04¼
Soft Unbleached	.07¼	@	.07¾
Blue Cheviot	5.50	@	6.00
Fancy	.02½	@	.02¾
Washable	.0165	@	.0170
Cottons—According to grades—			
Blue Overalls	5.00	@	5.50
New Black, soft	.04	@	.04¾
Khaki Cuttings	.04	@	.04¾
O. D. Khaki	.03¾	@	.04¾
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	—	@	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.75	@	2.00
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	3.90	@	4.00
Roofing Stock—			
No. 1	1.80	@	1.90
No. 2	1.40	@	1.50
No. 3	1.20	@	1.25

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.70	@	1.80
New White Shirt Cuttings	6.50	@	6.75
Dutch Blues	2.25	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.85	@	2.00
Old Linsey Garments	1.90	@	2.10
New Silesias	5.25	@	6.00

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.11	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.12	@	—
No. 2 Colored	.09	@	—
Ledgers			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.50	@	—
No. 2 M. F. (Carloads)	6.00	@	—
No. 3 M. F. (Carloads)	6.00	@	—
No. 1 S. C. (Carloads)	7.00	@	—
No. 2 S. C. (Carloads)	6.50	@	—
No. 3 S. C. (Carloads)	6.50	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown	4.75	@	—
White Wrap	3.50	@	—
"B" Manila	4.80	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft, No. 2	5.40	@	—

(F. o. b. Cars Toronto)

News, per ton—			
Rolls (contract)	40.50	@	—
Sheets	45.00	@	—

Pulp

Ground wood	27.00	@	—
Unbleached Sulphite	42.00	@	—
Book (Class 1)	58.00	@	—
Writing (Class 2)	59.00	@	—
Select (Class 3)	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.25
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.40
Printed Manilas	.50	@	—
Kraft	1.00	@	1.60
News and Scrap—			
Strictly Overissue	.55	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.07½	@	.07¾
Fancy Shirt Cuttings	.02¾	@	.03

ndex, Technical Section, Paper Trade Journal, Vol. 102

January to June, 1936

Prepared by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

The page numbers of the following index refer to the ntinuous paging of the *Technical Section* and have no lation to the paging of the individual numbers of the APER TRADE JOURNAL.

References to the abstracts published in the *Technical ction* are preceded by the letter "A"; those to patents e indicated by the letter "P." Other entries refer to iginal articles in the *Section;* the author entries are inted in capitals. No author entries are given for the stracts or patents.

In order to facilitate reference to the individual numbers the PAPER TRADE JOURNAL, the following table is given, owing the pages of the *Technical Section* appearing in ch of the 26 numbers of Volume 102 of the JOURNAL anuary to June, 1936).

No. 1	Jan.	2	1- 16	No. 14	April	2	189-202
No. 2	Jan.	9	17- 30	No. 15	April	9	203-216
No. 3	Jan.	16	31- 44	No. 16	April	16	217-228
No. 4	Jan.	23	45- 54	No. 17	April	23	229-240
No. 5	Jan.	30	55- 68	No. 18	April	30	241-246
No. 6	Feb.	6	69- 80	No. 19	May	7	247-258
No. 7	Feb.	13	81- 88	No. 20	May	14	259-268
No. 8	Feb.	20	89-124	No. 21	May	21	269-278
No. 9	Feb.	27	125-144	No. 22	May	28	279-288
No. 10	March	5	145-154	No. 23	June	4	289-296
No. 11	March	12	155-170	No. 24	June	11	297-304
No. 12	March	19	171-180	No. 25	June	18	305-320
No. 13	March	26	181-188	No. 26	June	25	321-332

A

RAMS, ALLEN, and BRABENDER, EORGE J. Factors affecting the determination of water vapor permeability 204
iorbent papers, drying rate 112
itamide, treating felts with P9
itates, pretreatment of wood with P187
itic acid, recovery from black liquor P168
itone
Black liquor, recovery from P168
Sulphite waste liquor, determination in 83
idity of paper, measurement A88, 89
ids, determination in sulphite waste liquor 82
AMS, F. W. Rate of drying of writing papers 319
hesives A321
Silicate 234
Starch, use of, as 229
rotemper A10
Conditioning A10
ali recovery, electrical precipitation in 45
aline process 198
Waste gases, chlorine treatment A168
ha pulp, characteristics 155
im 233
Dyes, effect on 269
Pigment retention, relation to 24
White water clarification, effect on 4
aminum sulphate, hydrogen ion concentration 3
ibrac, corrosion of 76
monia, treating felts with P9
imal sizing A288
pen wood
Digestion, rate of 53
Nitric acid digestion A170
trition mill
Contact inches per minute 192
Impact inches per minute 192

B

agasse, fermentation A87
amboo
Digestion P146
Paper making material P146
ark, determination in pulp wood 263, 264
arker P8, 297
Electrical control P8
Regulator, automatic P8
Spade shaped P9
arking, forest vs. mill A7
arking drum, carrier for P8
'Barnacle Bill' beater A188
asis weight, relation to pigment retention 23
earings
Antifriction 120, 199
Nomy A5
Sleeve type 119
eater P188, 198, 299
Contact inches per minute 192
Defects A188
Impact inches per minute 192
Series A188
Thorsen-Héry 60
Voith P188
Vortex A188
eater furnish P188
eater size 66
eating
Dyes, effect on 269
Hydraulic system 299
Pigment retention, effect on 25
Sheet properties, effect on 36
eating tackle, mechanics of 256
eating tester A10
EAVER, C. E. *See* Sultzer, N. W.
ECHTEL, A. R. Increased saveall recovery with chemical control 1
eech wood, sulphite pulp from A169
ENSON, H. K. *See* Partansky, A. M.
eryllium copper alloys 75
ewoid sizing process 197, A288, A296
ibliography
Pitch in pulp 316
Sulphite waste liquor analysis 87
Surface treatment of paper (patents) 326
Waste liquors and gases (patents) 11, 28, 31
IDWELL, G. LAMONT, Jr., and SUTHERLAND, D. MANSON, Jr. Computation of impact and contact inches in beaters and refiners 192
irm 18
ituminous paper A7
lack cooks, method of preventing P187
lack liquor
Acetic acid from P168
Alkali fusion P168
Carbonization P168
Chemical recovery 198
Evaporation, Murray-Waern system 271
Furnace P146
Heat content 275
Oxalic acid from P168
Patent review 11, 28, 31
Recovery, alkali loss in 45
Soap, floating, from P168
Wagner furnace A168
lack spruce, compression wood 221
leach vat P9
leaching 289
Chlorine P203
Hypochlorite 291
Mixing methods P203
Multi-stage 292
Review A203
Sulphite pulp A203
lowoff gases, composition A169
oard liners, titanium pigments in 249
oards P7
Corrugated P7
Drier, continuous P304
Impregnating P7
Rubber in P7
Warping A7
Waterproof P7
oiler scale, analysis 224
oiler shell, insulation 108
oiler water
Carry over 226
Conditioning 222
Deaeration 227
Oxygen elimination 225
Pretreatment 227
oiler-metal cracking 226
oilers
Corrosion in 224
High pressure A10
Scale formation, prevention of 224
ond paper, titanium pigment in 248
ook paper, titanium pigment in 248
ox testing laboratory A9
RABENDER, GEORGE J. *See* Abrams, Allen.
RAINERD, F. W. Testing of wood pulp for moisture 150
rasses, properties 73
reaker beater, screen 199
Breast roll P9
Brightness tester A9
Bronzes 74
BROWNING, B. L., and ULN, R. W. K. The nature and measurement of paper acidity 89
BUTZLER, E. W. Proper feed-water and boiler-water conditioning for high pressure boilers 222
BURDICK, T. A. Application of Diesel engine to the paper industry 146
Bursting strength
Beating, effect of 38
Paper, determination of 255
Official method 122
Pigmentation, effect of 38
Business cycle 98

C

Cable paper, twisting number A10
Calcium, determination in sulphite waste liquors 82
Calcium acetate, use in cigarette paper P7
Calcium hydroxide, effect on white water clarification 4
Calcium sulphate, use as filler P296
Calcium sulphite, manufacture A168
Calender P8
Power requirements 215
Calender stack A6
Carbon paper A5, P8
CARSON, F. T. Some notes on the revision of methods for measuring the strength of paper 253
Casein 234
Invert sugar, use with 66
Rosin size, use with 197
Cast irons 58
Catalog paper, titanium pigments in 248
Caustic soda 232
Cellulose
Acidity, determination of A88
Purification by hydrochloric acid A89
Review A145
Water penetration A88
X-ray studies A88
Cellulose fibers
Dimensions of A88
Fibrillar structure 250
Structure 250
Cement
Lime sludge A168
Silicate A10
Cement industry, paper sacks for A7
Celoron, suction box covers A6
Centrifiner A6
Cerelose, use in paper 235
Chemical methods of paper testing, Committee report 79
Chemical recovery, Murray-Waern system 271
Chip density, determination of 266
Chip screens 297
Chlorine 233
Pulp, purification of, with A305
Cigarette paper P7
Flax hemp rope pulp for A146
CLARK, FREDERIC C. Pulp and paper manufacture developments 197
CLARK, JAMES d'A. Some observations on burst, tensile and stretch tests 26
CLARK, JAMES d'A., and von HAZMBURG, R. S. Further notes on the kollergang beating method for pulp

evaluation 193
Clark kollergang 193
Classifiner 102
Clay 232
Coating with P203
Dispersing agent P203
Coal burning equipment 176
Coal handling equipment 176
Coated paper
Apparatus P288
Curling 281
Drying P304
Dull finish P288
Latex in P288
Lithography on 281
Oil absorption test 242
Peeling 281
Picking 281
Plasticizers in 65
Starch, use of 230
Coating
Patent review 326
Pebble mill in 277
Coating brushes A7
Coating materials P296
Titanium pigments 248
Coating mixtures, grinding in pebble mill 277
Cobb water resistance test 40
CODWISE, PHILIP W. Water resistance of paper 39
COGHILL, JAMES. Pulp testing by a rapid sheet making process 127
Color Lakes 269
Committee on Abstracts and Bibliography, report 237
Compression wood
Characteristics 220
Occurrence 220
Condenser paper, flax hemp rope pulp for A146
Consistency
Regulation P9
Riffling, effect on A6
Construction materials 43
Contact inches 193
Copper
Corrosion tests in sulphur dioxide .. 76
Properties 71
Season cracking 76
Spray tests 76
Copper alloys 72
Corrosion in sulphur dioxide 76
Copper number of pulps A10
Copper-beryllium alloys 75
Copper-nickel alloys 74
Copper-nickel-zinc alloys 74
Copper-silicon alloys 74
Corn sirup, plasticizer 63
Cornstalk pith
Separation of A87
Uses of A87
Corrosion
Boiler 224
Copper and copper alloys 76
Costs, calculation of A19
Cotton linters
Cellulose yield A87
Evaluation A87
Ripeness A87
Cottrell electrical precipitator 45
Couch section, power requirements 213
COWLES, EDWIN. The Cowles system for detrashing and defibering waste paper stock 102
Cowles classifiner 102
Cowles refiner 102
Curling of coated paper 281

D

Deinking A88, P88
Equipment, insulation of 109
DICKHAUT, STEPHEN J. Using pebble mill in coating mill 277
Diesel engine
Characteristics 147
Paper industry, use in 146
Plant cost 149
Plant layout 149
Diethyleneglycol, pulping with P188
Digesters
Continuous P188
Filling P8
Insulation 108
Iron, use of 58
Liquor circulation in P9
Disc refiner 256
Doctor, Vickery A6
DODGE, GEORGE W. The Thorsen-Héry beater 60
Downingtown top press roll drive A6
Downingtown suction felt roll A6
Drainage rate, relation to pigment retention 23
Drier
Automatic control P8, 301
Condensate regulatory valve 185, P304
Conveyor for A296
Drainage P304
Insulation 301
Test sheet 108
Drier cylinder 139
Steam joint P304
Drier felt seam 199
Drier section, power requirements P304
Drives, electric 214
Drying A8
Writing paper, rate of A304
Drying process, control 319
Dyes 185
Paper mill variables, effect of 234
..... 198, A203
..... 269

E

Electric brakes for winder A8
Electric drives A8
Electric finish and formation tester .. A8
Electrical machinery A10
Mechanical design 116
Ventilation 116
Electric power coordination 116
Esparto, paper making material A10
Ethanol, determination in sulphite waste liquors A87
Ethylene glycol
Plasticizer 83
Pulping with 65
Eucalyptus, paper making material P188
Eucalyptus globulus, paper making material A87
Eucalyptus robusta, paper making material A87
Eucalyptus viminalis, paper making material A87
Evaporation, Murray-Waern system 271
Evaporator-scrubber 274
Everdur 74
Corrosion 76
Expansion of paper, effect of invert sugar 66
Explosion process P187

F

Fans A87
Feedwater 118
Conditioning 222
Humus, removal of A10
Oxygen, removal of 225
Felts
Conditioning A6
Treating with ammonia P9
Washing A6
Ferrous alloys, cast 76
Fertilizer, lime sludge as 58
Fertilizer industry, paper sacks for A168
Fiber analysis, accuracy of A7
Fiber board, vulcanized A321
Fibers A5
Microdissection 250
Structure 250
Fibrous Raw Materials Testing Committee, report 199
Fillers P296
Dyes, effect on 269
Opacifying effect A5
Retention 197
Titanium dioxide as 247
Finishing department, incentives in..... 174
Fire resistant paper A5
Flax hemp rope, paper making material A146
Flax waste, paper making material P146
Flotation, use in deinking A88
Flotation agent, preparation from black liquor P168
Fluorescence analysis A9
Folding endurance
Beating, effect of 38
Pigmentation, effect of 38
Plasticizers, effect of 65
Formaldehyde, effect on pitch 313
Formation number A321
Formation tester 303
Four-foot cord rack 262
Fourdrinier wire 78
Freeness
Cowles classifiner, effect of 105
Hydrogen ion concentration, effect of A305
FRITZ, H. E. and JONES, S. B. Comparative head losses in various kind of pipe when unbeaten pulp of certain kinds and consistencies are being pumped 238
FUCHS, WALTER M. Chemical nature of lignin 181
Furfural, determination in sulphite waste liquor 84
Fuzz detector 252

G

Gear drive, beveled 199
General Electric reflectance meter A9
Germany, paper making in A87
Giller tower A168
Gillet size process 197, A296
Glassine paper, drying rate 114
Glucose, use as plasticizer 235
Glue, animal A321
Glycerol
Plasticizer, use as 63, 235
Transparent papers, use in A7
Glycols, use as plasticizers 63
Government Printing Office
Paper testing at A9
Printer's troubles at A10
Graphic Arts Committee 283
Grappling device, paper handling with . A6
Gray Harbor Pulp and Paper Co. mill .. A19
Greaseproof paper, drying rate 114
Great Northern grinder A170, 318
Green beating tester A10
Green slowness tester A321
Green liquor, chips impregnated with .. P146
GRIFFIN, ROGER C., and McKINLEY, RUSSELL W. Studies of tensile and bursting tests 20
Grinder
Experimental A170
Great Northern A170, 318
Sampo A170
Gummed paper P288

H

Hall Process 318
HASLAM, J. H., and STEELE, F. A. The retention of pigments in paper .. 22
von HAZMBURG, S. S. *See* Clark, James d'A.
Heat cycle of paper mill 276
Heat insulation P8
Heat losses from bare surfaces 110
Heat production, progress report 176
Heat transmission, progress report 176
Heijkenskjold method for yeast 260
Hemicelluloses
Extraction A88
Mesquite wood A145
Hemp waste, paper making material .. P146
HEMPHILL, J. W. Insulation specifications for the paper industry 107
HERVEY, DAVID E. Comparative pulpwood growing capacities of southeast Georgia and the fog belt on the North Pacific coast 200
HOCK, CHARLES W. *See* Seifriz, William.
Hot plate for sheet making 129
Hydration
Opacity, effect on 38
Pigment retention, effect on 37
Review A188
Hydrogen ion concentration
Dyes, effect on 269
Freeness, effect on A305
Pitch emulsion, effect on 315
White water recovery process 1
Hydrogen ion indicator 44
Hydrogen ion values A9
Hygrotemper A10
Hypochlorite bleaching 291
HUNICKE, A. BYRON. Relationship of management to technology 244
HUNTER, ELIZABETH. Surface treatment of paper on the fourdrinier machine 326

I

Impact inches 192
Indicators A9
Hydrogen ion 44
Ink absorption test of paper 242
Inks A10
Insulating materials 107
Integral-furnace boiler 177
Invert sugar as plasticizer 63, 235
Iron, removal from water 17
Iron salts, effect on dyes 269

J

JACKSON, DONALD T., and PARSONS, JOHN L. A universal hydrogen ion indicator 44
JONES, S. B. *See* Fritz, H. E.
Jordan
Contact inches per minute 192
Impact inches per minutes 192
Series A188
Jordan engine, plug structure P188
Jordan plug 300
Jute waste, paper making material P146

K

KEMP, JAMES T. Copper and the copper alloy metals 71
Kneader 199
Knives
Beater roll, fastening to 188
Fastening to shaft P8
Grinding A6
KOCH, C. J. Mechanical design of electrical machinery 116
Kollergang, pulp testing with 193
Kraft process, chips impregnated with green liquor P146
KRESS, OTTO, and MOSS, LAMAR A. Survey of pitch troubles in the manufacture and use of sulphite pulp 306

L

LaQUE, F. L. Cast ferrous alloys in the paper industry 58
Latex
Boards, use in P7
Coated paper, use in P288
LEE, JAMES A. Non-fibrous raw materials (1935-1936) 231
Lignin A146
Alkali fusion A145
Alkaline oxidation A145

Ammonia A145
Artichoke stalks A145
Chemical nature 181
Constitution A146
Corn stalks A145
Determination, wood pretreatment effect of A145
Extraction A145
Formula 183
Oat hull A145
Phenol 182
Straw A145
Sulphite waste liquor, determination in 84
gnocellulose, hydrolysis A19
ne 231
ne sludge A168
hographic paper 293
bloily pine
Digestion, rate of 52
Georgia, growth in 200
ngleaf pine
Digestion, rate of 52
Georgia growth in 200
minescence analysis A9

M

hinery, use of iron for 58
READY, D. W. *See* Nolan, W. J.
REGOR, GEO. H. Study of the relation between the chemical and physical haracteristics of representative types of ulps 155
INLEY, RUSSELL W. *See* Griffi, R. C.
agement, technology and 244
nitol, use of plasticizer 63
galt suction roll A6
hanical pulp
Black spruce compression wood .. 221
Color principle A170
Diethylene glycol, treatment with . P188
Freeness, effect of pH on A305
High grade newsprint A170
Hot grinding A170
Quality A170
Southern pine A87
uite wood, hemicellulose A145
anol
Black liquor, recovery from P168
Sulphite waste liquor, determination in 83
oxy group, determination in wood A321
LER, JAMES D. Materials of Construction developments 43
herlich pulp, characteristics 155
tening device P9
ture
Pulp, test of 150
Wood, determination in A321
ture resistance, paper A10
TGOMERY, A. E. Drying rate for ue and absorbent paper 112
S, LAMAR A. *See* Kress, Otto
rs 116
tarting device P8
n paper A7
n test 26
ressure application, rate of 21
y-Waern system of chemical and te heat recovery 271

N

rint A6
rinding wood for A170
rint mills, technical control in . A170
l alloys A19
l-copper alloys 74
ist 58
CZYK, JOHN. Physical characters and printing quality of paper 241
acid process A170
acid-benzene, digestion with P187
AN, W. J., and McCREADY, D. The rate of digestion of wood in ium hydroxide solutions 48
fibrous Raw Materials Committee, ort 231
y bearing A5
ES, H. G. Personnel management velopment report 202
oline, use as plasticizer 63

O

absorption test for coated paper 242
city
Hydration, effect of 38
Titanium dioxide, effect of 37
lic acid, recovery from black liquor P168
cellulose, acidity, determination of .. A88

P

er
Absorbent, drying rate 112
Acidity
Measurement 89
Nature of 93
Air conditioning A10
Bituminous A7
Burst tests 26
Bursting strength, determination 255
Official method 122
Carbon P8
Catalog, titanium pigments in 248
Cerelose, use of 235
Cigarette P7
Coated, oil absorption test 242
Coating P203
Conductive sparks, determination of A9
Corn sirup, use of 63
Crimping P8
Drying rate 112, 114, 319
Dyeing A203
Enamel coated P288
Expansion, effect of invert sugar 66
Fiber analysis A10
Fire resistant A5
Formation
Measurement A321
Printing quality and 243
Fuzz detector 252
Glassine, drying rate 114
Glucose, use of 235
Glycerol, use of 63, 235
Glycols, use of 63
Graduated drying A296
Greaseproof, drying rate 114
Gummed P288
Handling with grappling devices .. A6
Hydrogen ion concentration 89
Temperature of extraction, effect of 92
White water pH, relation of .. 95
Ink absorption test 242
Invert sugar in 63, 235
Lithographic 293
Longitudinal tester A10
Luminescence analysis A9
Mannitol, use of 63
Moistening device P9
Moisture content, control P8, 185
Moisture regulator P304
Moisture resistance A10
Moisture retention 64
Mulch A7
Mullen test studies 21
Permanency A10
Pick of surface P10
Pigments, retention of 22
Plasticizers 63, 235
Printer's troubles A10
Printing P6
Quality 241
Physical characteristics 241
Proof press as test 243
Proof press for testing 243
Sizing curves 42
Sorbitol, use of 63
Stretch, determination of 253
Official method 123
Stretch tests 26
Strength, effect of plasticizers 65
Sulphonated oils, use of 235
Surface, determination of P10
Surface coloring, patent review 326
Surface treatment, patent review .. 326
Tensile strength, determination of 253
Official method 124
Studies 20
Tensile tests 26
Tissue, drying rate 112
Titanium dioxide, retention of 36
Total acidity 89
Transparency A5
Transparent A7
Twisting number A10
Water resistance, test of 39
Water vapor permeability, tests of 204
Waterproofing P7
Whiteness, determination of A9
Writing, drying rate 319
Paper industry
Business cycle, relation of 98
Cast ferrous alloys in 58
Diesel engine in 146
Steam requirements 147
Paper machine
Power requirements, analysis 213
Speed, regulation of P9
Torque characteristics 216
Paper making
Starch in 229
Ultraviolet light, use of A321
Paper making materials
Bamboo P146
Beech wood A169
Esparto A87
Eucalyptus A87
Flax hemp rope A146
Flax waste P146
German problems A87
Hemp waste P146
Jute waste P146
Pine wood A169
Pinus insignis A87
Southern pines A87
Wood freed from rosin A187
Paper mills
Bonus in 171
Incentives in 171
Paper sacks A7
Paper stock, effect on dyes 269
Paper testing
Bibliography for 1935 68
Instruments 302
Progress report 317
Review for 1935 67
Ultra-violet light in A9
United States Government Printing Office A9
Paper Testing Committee, report 317
Paper textiles A6
Paper web guide P9
Paraffin, device for adding to paper P8
PARSONS, JOHN L. *See* Jackson, D. T.
PARTANSKY, A. M., and BENSON, H. K. Analysis of sulphite waste liquor 81
Patents
Surface treatment of paper 326
United States 55, 217
Patents Committee, report 201
Pebble mill, use in coating 277
Peeling of coated paper 281
Pentoses, determination in sulphite waste liquors 84
Permanganate-chlorine number A10
Personal Management Committee, report 202
PEW, J. C. *See* Pillow, M. Y.
Phenols, digestion of wood with A170
Phospyhates, pretreatment of wood with P187
Pick, measurement of P10
Picking of coated paper 281
Pigments
Paper, retention of, by 22
Beating, effect of 36
PIKE, N. R. Invert sugar as a plasticizer in paper 63
PILLOW, M. Y., SCHAEFER, E. R., and PEW, J. C. Occurrence of compression wood in black spruce and its effect on properties of ground wood pulp 220
Pine, rate of growth 200
Pine oil as plasticizer 65
Pine wood
Digestion, rate of 52, 53
Sulphate pulp from A169
Pinus insignis, paper making material ... A87
Pipe insulation, specifications 107
Pipes, pulp losses in 238
Pitch in pulp
Bibliography 316
Formaldehyde, effect of 313
Properties 311
Pulp, determination in A321
Pulp, removal from 315
See also Spruce pitch.
Pitch emulsion 314
Beating, effect of 314
Hydrogen ion concentration effect of 315
Pitch troubles 306
Plant cell walls, construction 250
Plants, cultivated 322
Plasticizers 63, P188, 235
Plasticizing, mechanics of 63
Poplars, hybridization 325
Porosity of paper A10
Power plants, insulation 108
Power transmission, progress report .. 176
Press board, drying control by electrical resistance A304
Press felt, care of 137, 138
Press section, power requirements 214
Printer
Coated paper difficulties 281
Paper and 283
Paper troubles A10
Printing, relation of smoothness A10
Printing industry, air conditioning in .. A10
Printing paper
Guide lines on P8
Three ply P6
Titanium pigments in 248
Proof press, use for paper testing 243
Proportioner (for sheet making) 129
Protein, vegetable, in coating papers .. P288
Pulp
Alpha-cellulose-copper number relation 161
Alpha-cellulose-strength-relation 163
Beating strength tests 160
Bleaching 289
Chlorine P203
Review A203
Chemical characteristics 155
Cooking time A305
Copper number A10
Strength ratio 163
Degradation rate 160
Degree of beating A10
Freeness
Cowles classifiner, effect of 105
Hydrogen ion concentration, effect of A305
Losses in pipes 238
Luminescence analysis A9
Mercerization A305, P305
Moisture, test for 150
Moisture distribution 151
Nitration, preparation for P305
Permanganate-chlorine number .. A10
Physical characteristics 155
Pitch, removal of 315
Pumping characteristics 239
Purification A305, P305
Rayon A304, A305
Resin content, determination of A321
Roe-Kung number A10
Sampling 150
Solubility curve A304
Titration chlorine number A10

Viscosity 160
Alpha-cellulose relation 161
Copper number relation 161
Strength ratios 162
Water content, effect on mercerization A305
Western hemlock, color principle .. A170
Pulp classifier 302
Pulp mill, heat cycle 276
Pulp screen 298
Pulp testing, kollergang in 193
Pulpwood
Cord rack 262
Cost calculations 267
Georgia, growth in 200
Moisture, estimation of 262
North Pacific coast, growth in .. 200
Physical evaluation 262
Railroad scaling 265
Volume, determination of 262
Weight (dry), determination of 262
Pumps
Centrifugal A7
Plunger A7
Vacuum A6
Pyrites, roasting P169

Q

Quartz lamp A9

R

Rag pulps, characteristics 155
Raylick B A170
Rayon, pulps for A304, A305
Red brass 78
REED, ROBERT F. Lithography on coated paper 281
REED, ROBERT. Recent developments in the technology of lithographic papers 293
Reels, power requirements 216
Refiner 299
Disc as 256
Reflectance meter A9
Resin soap, combustion 274
Riffling, effect on consistency A6
RIVISE, C. W. Patents Committee development report 201
Road binder, sulphite waste liquor as .. A170
Roe-Kung number A10
ROGERS, H. W. The characteristics of power requirements for paper machines 213
Roll cutting machine P9
Roof deck, insulation 110
Roofing, colored granules P6
ROSENCRANTS, F. H. Improved Murray-Waern system of chemical and waste heat recovery 271
Rosin 234
Cooking A296
Heat, effect of 312
Properties 311
Rosin emulsion P296
Rosin size, losses in manufacture A296
Rosin sizing 197
Rotameter, balanced pressure 268
Rotary cutter 302
RUE, JOHN D. What do we know about bleaching? 289

S

Salt cake 232
Sampo grindstone A170
Sandberg-Sundblad recovery system A168
Save all, chemical control 1
Save all trays 199
Saws, circular, protective device P8
Scale formation, prevention in boilers 224
Scales, paper 129
SCHAEFER, E. R. *See* Pillow, M. Y.
Schopper tension tester A10
Screens A5, A6, P6
Rotary P6
SCRIBNER, B. W. Developments in paper testing during 1935 67
SCRIBNER, B. W. Progress report of paper testing committee for 1935-6 317
SEIFRIZ, WM., and HOCK, CHAS. W. The structure of paper pulp fibers 250
Semi-cellulose P188
Shake P6
Shake head 199
Shake screen P8
SHEEHAN, JOSEPH A. Control of moisture content in paper undergoing progressive drying 185
Sheet machine 128
Sheet making process 127
Temperature, effect of 194
Sheet mold 133
Sheet press 137
SHOEMAKER, M. J. Catalytic removal of iron from water 17
Shower pipe A5
Silicate cements A10
Sinclair synchrisiscope A9
Size
Dyes, effect on 269
Starch, use of, as 229
Size making, losses A296
Sizing
Bewoid process A296
Rosin 197
Rosin emulsion in P296
Starch 197
Surface, patent review 326
Theories A288
Wax emulsion P296
Slash pine, growth in Georgia 200
Slowness tester 302, A321
Smelting furnace P146
Air-cooled form P168
Soda ash 231
Furnace, stack losses, recovery 45
SODERBERG, FRED A. Paper mill variables and their effect upon color (abstract) 269
Sodium acetate, use in cigarette paper .. P7
Sodium benzoate, use in cigarette paper .. P7
Sodium bitartrate, use in cigarette paper P7
Sodium carbonate, effect upon white water clarification 3
Sodium hydroxide
White water clarification, effect on .. 2
Wood digestion, rate of 48
Sodium silicate 233
Transparent paper, use in A7
Sodium sulphate, electrical recovery 45
Sorbitol as plasticizer 63
Soundview Pulp Co. mills A19
Southern pine, paper making material .. A87
Spruce pitch
Aging 312
Heat, effect of 312
Properties 312
See also Pitch
Spruce wood, rate of digestion with sodium hydroxide 48
Stack gases, electrical precipitation 45
Stacks, insulation 108
Stainless steels 59
Starch 234
Adhesive, use as 229
Beater application 230
Coated paper, use in 230
Enzymes, modification by 230
Pigment retention, relation to 24
Size, use as 229
Sizing 197
Steam boilers 177
Steam turbine A19
Insulation 108
STEELE, F. A. *See* Haslam, J. H.
STEVENSON, LOUIS T. The paper industry and the business cycle 98
Stirling boiler 177
Stock, dry weight, regulation P8
Stock inlet P8
Voith high pressure A6
Stock preparation 189
STOUT, A. B. Origin and development of cultivated plants 322
STRASSER, JEROME. New applications and developments in the use of starch in paper 229
Straw, pulping at sugar plants A146
Stretch
Paper, determination of 253
Official method 123
Plasticizers, effect of 65
Suction box P6
Covers A6, 199
Suction screen, flat plate 199
Suction rolls A6
Sugars, determination in sulphite waste liquors 85
Sulphate mills, heat economy in recovery system A168
Sulphate paper, effect of heat A7
Sulphate pulp
Bleaching A203
Purification A305
Sulphide ore, roasting P169
Sulphite cooking liquor
Composition A168
High calcium oxide A169
Sulphite digesters
Circulation system P169
Indirect heating P169
Sulphite preheater, cleaning P169
Sulphite process
Blow off gases A169
Equipment developments 298
Pitch troubles 306
Recovered liquor in A169
Sulphite pulp
Hypochlorite bleaching A203
Southern pine A87
Two-stage process A169
Sulphite waste liquors 198
Analyses 86
Analysis 81
Composition 260
Concentration P169
Hydrogen ion concentration A170
Patent review 11, 28, 31
Road binder A170
Sugar content 86
Sulphurous acid, recovery of P169
Utilization 298
Yeast from 259
Sulphonated castor oil, plasticizer 65
Sulphonated oils, use in paper 235
Sulphur 233
Sulphite waste liquor, determination in 82
Sulphur burner A168, 298
Sulphur dioxide, corrosion of copper by .. 76
Sulphur trioxide, formation of A168
SULTZER, N. W., and BEAVER, C. E. Alkali recovery by electrical precipitation 45
Surface coloring of paper, patent review . 326
SUTHERLAND, D. MANSON, JR. Refining action of discs 256
See also Midwell, G. Lamont, Jr.
Synchrisiscope A9

T

Tearing strength
Beating, effect of 38
Pigmentation, effect of 38
Plasticizers, effect of 65
Technical control 244
News print mills A170
Tensile test 20
Beating, effect of 38
Paper, determination of 253
Official method 124
Pigmentation, effect of 38
Plasticizers, effect of 65
Rate of application of load 20
Tension regulator P9
Test sheets 127
Calendering 142
Drier 139
Testing 141
Uniformity 132
Textiles, paper A6
Thickener P9
Thickness
Beating, effect of 38
Pigmentation, effect of 38
Thomas meal, sacks for A7
THOMPSON, SANFORD E. Improved pulp and paper quality through incentives 171
Thorsen-Héry beater 60
Tissue machine A7
Tissue paper
Drying rate 112
Titanium pigments in 248
Titanium dioxide
Coating, use in P203
Filler, use as 247
Retention 36
Titanium pigments 233
Application, methods of 248
Commercial applications 248
Fillers, use as 247
Properties 247
Titanox as filler 247
Top press roll
Downingtown drive A6
Drive 199
Transparent paper P5, A7
Trees, breeding 325
Tubes, fibrous P8
Turpentine, sulphate, purification P168
Twisting number A10

U

ULM, R. W. K. *See* Browning, B. L.
Ultraviolet light, use in paper mill A9, A321

V

Vacuum pumps A6
VANCE, JOHN F. The paper maker and the graphic arts 283
Vapometer 205
Vickery doctor A6
Viscosity, determination of A321
Voith high pressure stock inlet A6
Vortex beater A188, 300

W

Wagner furnace A168
Insulation 109
WALKER, GEORGE K. Grinding pulp with Great Northern grinders 318
Washing, effect on pigment retention 24
Waste heat boiler, insulation 109
Waste heat recovery, Murray-Waern system 271
Waste paper
Defibering 102
Deinking A88
Detrashing 102
Water
Analysis 1
Birm in purification 18
Dyes, effect on 269
Filter plants A19
Freezing in pipes 110
Iron, removal of 17
Purification 197
Water marks, control of position P8
Water pipes, insulation 109
Water resistance
Cobb test 40
Paper, tests 39
Water vapor permeability
Test for 204
Test sheet area, effect of 209
Vapor pressure, effect of 206
WATERS, VINCENT F. The rate of drying of glassine and greaseproof paper 114
Wax, waterproofing with P7
Wax emulsion P296
Waxes 235
WEHMER, P. F. Report of Subcommit-

on Chemical Methods 79
T, CLARENCE J. Report of Committee on Abstracts and Bibliography.. 237
T, CLARENCE J. United States ents on paper making 55, 217
T, CLARENCE J. Waste liquors gases of the paper industry.....11, 28, 31
ern hemlock, rate of growth 201
ern hemlock pulp, color principle.. A170
TON, HARRY E. Some paper king equipment observations 297
press felt, cleaning device P8
pine, rate of digestion 52
water
larification with alkali 4
Hydrogen ion concentration 2, 95
ampler 302
eness of paper, determination of.... A9
LETS, WM. R. Effect of beating pigmentation on sheet properties.. 36
LETS, WM. R. Titanium pigments in paper making 247
Williams finish and formation tester.... A10
WILMER, F. P. Heat and power production and transmission 176
Winders
Electric A8
Power requirements 216
Wire seam A6
Wire section, power requirements 213
Wires, dirt on A6
Wood
Barking P8
Barking in forests A7
Compression 220
Digestion with sodium hydroxide, rate of 48
Methoxyl group, determination of... A321
Moisture, determination of A321
Nitric acid, oxidation with A170
Phenols, digesting with A170
Pretreatment P187
Rosin-free, digestion of A187
Wood conveyor, discharge system A6
Wood grinder P170
Electric feed regulation P170
Writing paper, drying rate 319

Y

Yamada hydrogen ion indicator 44
Yankee machine A304, P304
Yeast, production from sulphite waste liquor 259
YOUTZ, M. A. Fibrous raw materials testing developments 199

Z

Zeolite, synthetic 18
Zeolite deconcentrator 179
Zinc pigments 233, P288

Paper Companies Join TAPPI

he Executive Committee of the Technical Associaof the Pulp and Paper Industry has announced that ollowing companies have become corporate members:

andin Paper Company, Grand Rapids, Minn., manuirers of newsprint and groundwood pulp, to be repre:d by R. M. True, technical director.

illicothe Paper Company, Chillicothe, Ohio, makers ook papers, lithographic, offset, sulphite bond, writing, lope, papeterie and tablet papers, to be represented by . Bearce, vice president and chief engineer.

nace Spiro Sohne, Bohm-Krumau, Czechoslovakia, ers of printing papers, imitation chromo board, leather ds, sulphite, kraft and mechanical pulps, to be repre:d by Rudolf Klement, managing director.

alamazoo Vegetable Parchment Company, Parchment, ., makers of waterleaf, waxing, waxed, vegetable hment, sulphite, manifold, bond and paper specialties, represented by Ralph Hayward, president and genmanager.

ustralian Paper Manufacturers, Ltd., Melbourne, Aus-a, at present the only paper manufacturing concern ating in Australia, and makers of kraft paper, paperds, strawboards, sulphite papers, roofing felt and r papers. The company will be represented by W. D. okes, assistant managing director.

onoco Products Company, Hartsville, S. C., makers est jute liner, manila lined board and other board spe-ies, will be represented by James L. Coker, president.

Great Falls Paper Co. To Rebuild

[FROM OUR REGULAR CORRESPONDENT]

REAT FALLS, Mont., July 18, 1936—Plan to rebuild ost immediately has been announced by officers of the at Falls Paper Company, burned out recently in one he most spectacular fires in Great Falls for several rs.

Detailed plans for the new building are not yet worked Frank E. Flaherty, vice president of the company, es, although it is to be one story, of earthquake proof fireproof brick and tile construction, and will probaoe of a design similar to the burned wooden building. new plant will be modern in every way, and will have re sprinkling system installed. Site of the building is oe on the same property as the former company offices, ng the Great Northern Railway property, 600 Second eet south.

The paper company reopened for business with tempoy offices in the Old Wilbur Transfer and Storage Comny building, 420 Second street south, and is filling a mber of orders. Several carloads of paper were enute to the distributing house here when the stock was stroyed, and have arrived, enabling the company to arry on."

Port of Albany Can Handle All Traffic

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., July 20, 1936—At a hearing during the week before the Interstate Commerce Commission it was brought out by counsel for the Port of Albany that the local seaport can handle all the traffic that might come to it as a result of port rate adjustments. Replying to a charge that adjustment of shipping costs by rail to the port from the Middle West, such as the Albany Port Commission asks, would enable the port to dominate the Atlantic seaboard marine trade, the council requested the federal body to adjust the alleged unfair situation either by decreasing rates at Albany or increasing them at other North Atlantic ports. The assurance that the port here is ready and has the capacity to meet whatever increased trade may result from the adjustment came after Henry F. Daugherty, representing Michigan paper mills, said it would throw the shipping picture out of joint. The disruption, he said, would offset any advantage the Michigan paper manufacturers may obtain as a result of lower freight rates on pulp wood through the local port. In explaining the paradox, Mr. Daugherty said the trade would be so heavy through Albany it would choke the port and force shippers to use other ports at higher rates. There is no other port in the country that has the cheap facilities to the Middle West that Albany has, he said, and the city can serve the area cheaper than any other port in the country. Other opponents declared that the proposed rates for the local port, approved by Examiner Bardwell of the Interstate Commerce Commission, if they become effective would give Albany an unfair advantage. It is expected that the decision of the Interstate Commerce Commission will be made known in a few weeks.

Sweetland Pressure Filter

Oliver United Filters, Inc., have just issued an interesting bulletin entitled "Sweetland Pressure Filter." It is stated that "Although the trend in most process industries is distinctly toward the use of continuous vacuum filtration because of its obvious advantages, there are many cases where only pressure filtration can be used effectively. For such purposes the modern Sweetland pressure filter offers many advantages. It is the standard pressure filter for the process industries. Years of service on a great variety of products have established its efficiency and low-cost operation. It is an exceptionally clean filter, has high capacity and is easy to handle and maintain. Features of the Sweetland filter which account largely for its wide popularity are: high capacities; high washing efficiency; automatic discharge of filter cake without hand-labor; no leakage; specially adaptable for use where filter aids are required. The constant visibility of filtrate from each leaf, made possible by individual sight glasses in each outlet, is an important operating feature. It helps to maintain high operating efficiency."

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has announced that the following have been elected to membership:

Clarence L. Buck, associate chemist, Government Printing Office, Washington, D. C., is a 1920 graduate of Beloit College and was formerly with the Newport Chemical Co., Carrollville, Wis., and the Bureau of Standards, Washington, D. C.

Edward W. Butzler, chemical engineer, Hall Laboratories, Inc., Pittsburgh, Pa., is a 1930 graduate of Carnegie Institute of Technology and was formerly with the Crucible Steel Company and the Bureau of Mines, Pittsburgh.

Jose B. Calva, consulting chemical engineer, Calva, Tomsicek & Co., St. Paul, Minn., is a graduate (1919) of the University of Pennsylvania, and (1928) the National University of Mexico, and was formerly with Baeder Adamson Co., Philadelphia, and the Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Frederick D. Elliott, laboratory assistant, Michigan Carton Company, Battle Creek, Mich.

Elis A. Ennevaara, research chemist, British Columbia Pulp and Paper Company, Port Alice, B. C., is a 1923 graduate of the University of Helsingfors. He was formerly technical director of Kymmene A/B, Finland; chemist for the Canadian International Paper Company, Gatineau, P. Q.; salesman for Restigouche Company, Ltd., and chemist for Fraser Companys, Ltd., Edmundston, N. B.

Arthur E. Gordon, advertising manager, PAPER TRADE JOURNAL and Lockwood Trade Journal Company, is a 1920 graduate of Fordham University.

Davis E. Hervey, chief of management party, U. S. Forest Service, Atlanta, Ga., is a 1933 graduate of the University of Washington.

Elliott G. Heslop, assistant chemist, Provincial Paper, Ltd., Port Arthur, Ontario, is a 1930 graduate of the University of Toronto. He was formerly with the Abitibi Power and Paper Company, Smooth Rock Falls, Ont., and the Brompton Pulp and Paper Company, East Angus, P. Q.

Donald T. Jackson, research chemist, Hammermill Paper Company, Erie, Pa., is a 1926 graduate of Montana State College and received his Ph. D. degree from the University of Pittsburgh in 1932.

Alfred E. Jacquot, technical control department, Crown Willamette Paper Company, West Linn, Ore., and Camas, Wash., is a 1933 graduate of the Oregon State College.

Eugene J. Kane, research chemist, Nekoosa-Edwards Paper Company, Port Edwards, Wis., is a graduate of Massachusetts State College and attended the Institute of Paper Chemistry.

Albert D. King, development and research department, Dennison Manufacturing Company, Framingham, Mass., is a 1932 graduate of the Massachusetts Institute of Technology and was formerly with the Agfa Ansco Corporation, Binghamton, N. Y.

John D. Lyall, mechanical engineer, A. E. Broughton & Co., Glens Falls, N. Y., is a 1930 graduate of Cornell University and was formerly with the International Paper Company, Glens Falls, N. Y., and the Mohawk Paper Mills, Cohoes, N. Y.

Thomas J. McGuff, chief chemist, Hollingsworth & Vose Company, E. Walpole, Mass., is a 1922 graduate of the University of Maine.

S. Roy Turner, mill manager, North American Pulp and Paper Corporation, Cheboygan, Mich, is a 1916 graduate of Queen's University, Kingston, Ontario. He was formerly plant engineer for the Canadian International Paper Company, Hawkesbury, Ontario; Spanish River Pulp and Paper Company, Espanola, Ontario; Canadian Ingersoll-Rand Company, Sherbrook, P. Q.; International Paper Company, Piercefield, Fort Edward and Glens Falls, N. Y., and assistant manager of the Howard Smith Paper Mills, Cornwall, Ontario, and Windsor Mills, P. Q.

Milton G. Schmitt, chemist, Thilmany Pulp and Paper Company, Kaukauna, Wis., attended the University of Wisconsin and the Institute of Paper Chemistry.

Reinhold A. Vogt, chemist, Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., is a 1932 graduate of Lawrence College and was formerly chemist for the Interlake Pulp and Paper Company, Appleton, Wis.

Arthur A. Weinland, chemist, Lee Paper Company, Vicksburg, Mich., is a 1931 graduate of Michigan State College.

Gustavus J. Esselen, consulting chemical engineer, 857 Boylston street, Boston, Mass. (reinstated).

Robert M. True, technical director, Blandin Paper Company, Grand Rapids, Minn., and formerly of the Chemical Paper Manufacturing Company, Holyoke, Mass. (reinstated).

E. O. Houghton, Restigouche Corporation, Ltd., Campbellton, N. B. (reinstated).

C. W. Richards, technical service, Krebs Pigment and Color Corporation, Newport, Del., formerly of the Oxford Paper Company, Brunswick, Me. (reinstated).

G. J. Manson, Brantford, Ontario (reinstated).

Donald K. Pattilloch, president, Pattilloch Processes, Inc., 24 School street, Boston, Mass. (reinstated).

Form To Be Used by TAPPI Committees

In order to facilitate the work of the new Committee on Educational Cooperation of the Technical Association of the Pulp and Paper Industry it has been found advisable to require that information contained in a request for financial assistance for a committe project should be grouped under the following headings and limited to one or two typewritten pages:

A. Name and definition of work to be carried out.
B. Description of subject and results desired.
C. Need for the results desired and assurance that it has not been done elsewhere.
D. Where and by whom the work will be done.
E. Estimated time and cost.

For the current year the sum of three thousand dollars has been appropriated by the Executive Committee of TAPPI for the use of committees in their various activities. This fund is administered in the form of research grants by the Committee on Educational Cooperation. Committees requiring financial assistance for their projects should submit their requests to their respective Divisional chairmen for approval, after which the requests go to the Committee on Educational Cooperation for final action.

It is hoped that this new TAPPI research fund will make possible the availability of technical information of value to the industry within a much shorter time than heretofore and will provide a greater opportunity for usefulness on the part of the committee organization of the Association.